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THE JOURNAL of the Oklahoma State Medical Association

VOL. IX. No. 9. SEPTEMBER, 1916 ANNUAL SUBSCRIPTION, $2.00

Published Monthly at Muskogee, Oklahoma, under direction of the Council.

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THE JOURNAL of the Oklahoma State Medical Association

VOL. IX MUSKOGEE, OKLA., SEPTEMBER, 1916 No. 9

THE ACCESSORY SINUSES OF THE NOSE.*

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(2) **"Sinusitis,"** J. H. Barnes, M. D., Enid.
(3) **"Treatment—Conservative and Radical,"** G. E. Hartshorne M. D., Shawnee.

THE ANATOMY, PHYSIOLOGY AND PATHOLOGY OF THE ACCESSORY SINUSES OF THE NOSE

By ALONZO C. McFARLING, M. D., Shawnee, Oklahoma.

Although volumes might be written upon the anatomy, physiology and pathology of the accessory sinuses, I shall discuss the subject in its different phases as briefly as I may to meet the requirements for which this paper was intended. And this, I offer as my apology for any unseemly omission or abridgment of the subject.

That we may the more easily correlate with the various sinuses, any point of surgical importance, or any pathological condition entailed by reason of peculiar anatomical formation; and, to facilitate their anatomical description, I will briefly outline the topography of the lateral wall of the nose.

For rhinological purposes this wall may be divided into three portions. 1. The inferior turbinal portion. 2. The middle nasal passage. 3. The ethomidal portion.

1. The inferior turbinal portion extends from the superior insertion of the inferior turbinate in the maxillary bone to the floor of the nose, thereby including the turbinate in its boundaries.

2. The middle nasal passage includes that portion of the lateral nasal wall lying above the inferior turbinate and below the ethmoidal bulla and posterior attachment of the middle turbinate. It is therefore bounded above, anteriorly by the bulla, and above posteriorly by the attachment of the middle turbinate, externally, by the processus uncinatus, hiatus semilunaris and pars membranacea, below by the attachment of the inferior turbinate, and internally by the middle turbinate and partially by the septum.

The ostiums of the sinuses of the first series empty into this passage.

3. The ethmoidal portion of the lateral wall of the nose includes all of those structures situated above the inferior margin of the middle turbinate, i. e., bulla ethmoidalis, middle turbinate and ethmoidal capsule including the superior turbinate.

*A Symposium Presented at the Annual Meeting, Oklahoma City, May 10, 1916.

Passing from the topography of the lateral nasal wall to the study of its basic structure, we find that two structures form its principal component parts; namely, 1. Superior maxillary bone (inferior portion); 2. Ethmoidal capsule (superior portion). The entire structure is completed by the addition of the palate, inferior turbinate and lachrymal bones.

The internal aspect of the inferior portion of the superior maxillary bone presents conspicuously a large opening (hiatus maxillaris) leading into a crater-like cavity which is partially closed in by the overlapping edges of bone. This cavity is the maxillary sinus and in the recent state is entirely closed in with the exception of one small ostium hidden by the lip-like projection of the uncinate process.

How this hiatus maxillaris is walled up and what structures enter into the formation of the partition between the maxillary sinus and the nasal cavity will now engage your attention.

The opening is not round, but takes on the character of a broad V at its inferior margin and is closed in by serving as a place of articulation for the inferior turbinate in the following manner. The inferior turbinate does not articulate with the lateral nasal wall as a pendulous body, but by a comparatively broad base which forms a distinct portion of that wall. This base fits snugly into the V-shaped edge of the maxillary hiatus and with the latter completely encloses the lower fourth of the maxillary antrum, and constitutes the thinnest portion of the lateral wall below the inferior turbinate.

The remaining three-fourths of the opening is closed in part from above by the ethmoid capsule which enters largely into the formation of the lateral nasal wall. If a straight line be drawn from the floor of the nose to the lamina cribriformis, it will be seen that the ethmoidal capsule occupies practically one-half the entire distance; and in its articulation with the superior maxillary bone, closes the superior part of the V-shaped maxillary hiatus.

With the inferior turbinate in place below, and the ethmoidal capsule in place above, it will now be noticed that the orifice leading into the antrum is considerably smaller, the remaining portion being for the most part closed in by a long, flat, curved strip of bone coming from above and extending downward and backward, practically dividing the remaining space. This process, however, does not hang free in the cavity, but is held in position by several projections articulating from the adjacent bones. It is a part of the ethmoidal capsule and is known as the uncinate process.

Immediately above the uncinate process, covering the superior margin of the maxillary hiatus in a similar manner as the maxillary process of the inferior turbinate covers the inferior, is situated a smooth, hollow, semispherical bony projection, which is the bulla ethmoidalis.

The entire slit or aperature between the uncinate process and bulla appears to lead into the maxillary antrum, but such is not the case, as it is completely enclosed by thin bone with the exception of a small hidden ostium at its posterior third. Because of its shape, this channel is described as the hiatus semilunaris and is of interest and importance because the frontal, anterior ethmoidal and maxillary sinuses have their ostiums associated with or emptying into it.

The orifice leading into the antrum is now greatly reduced in size, the remaining opening having somewhat the shape of a fish hook, but broken up into smaller segments by the various bony projections emanating from the uncinate process. This still leaves rather a considerable opening, even though it is interspersed with several bony bridges. In the skeleton, this opening is always present because no more bony tissue enters into the formation of this wall. In the recent state, however, this defect in the structural development of the nasal wall is replaced by the muco-periosteum of both the nose and maxillary sinus in the following manner; the mucous membrane and periostium of the nose are so intimately interwoven that it is almost impossible to separate them, consequently they form a continuous

covering for the osseous structures beneath. This membrane in the region of the uncinate process does not dip down into the empty spaces, but bridges them over, thereby forming an unbroken wall except in one small space between the posterior third of the uncinate process and bulla, where an aperture is constant which is the ostium of the maxillary sinus.

The same condition prevails in the lining membrane of the antrum and we, therefore, have the spaces around the uncinate process covered in by two layers of muco-periosteum which completes the partition between the nose and the maxillary sinus. This part of the nasal wall is known as the pars membranacea and is of surgical importance because it is the thinnest and most resilient part of the wall.

The pars membranacea is bounded above by the bulla, behind by the palate bone, below by the insertion of the inferior turbinate, and in part by the uncinate process, and thereby enclosing the posterior portion of the uncinate process in its boundaries. When accessory ostia are present they are situated between the processes of the uncinate, usually between that body and the inferior turbinate.

The lateral wall of the nose is completed by the addition of the palate and lachrymal bones. The palate bone forms the posterior portion of the lateral wall of the nose, as well as the hard palate, and presents crests for the attachments of the middle and inferior turbinates, but is of little importance as far as the accessory sinuses are concerned.

The lachrymal bone occupies a space between the frontal process of the superior maxillary and the lamina papyracea of the ethmoid, and is of surgical importance chiefly as a land mark in the operation on the ethmoidal cells by the orbital route, as the posterior ridge corresponds approximately with the anterior boundary of the ethmoidal capsule.

The maxillary sinus is situated within the body of the superior maxillary bone, and is irregularly pyramidal in shape with the lateral wall of the nose forming the base, the apex being at the junction of the molar with the superior maxillary. It has three sides, a superior, an anterior and a posterior and a base. These sides or walls constitute the limitations of the sinus proper, which is bounded above by the orbital plate of the superior maxillary, anteriorly by the canine fossa, and posteriorly by the pterygomaxillary fossa. The base, as has already been stated, is formed by those constituents which enter into the formation of the lateral nasal wall.

The most important wall from the point of view of the rhinologist is the nasal, and for two reasons: (1) Because it contains the sole opening into the sinus and is the first to show pathological changes when the sinus is affected. (2) It is the thinnest and presents the easiest mode of attacking the cavity, either for diagnostic or therapeutic purposes.

The anterior or wall of the canine fossa is next in importance, as radical operative procedures are usually made through this wall. It can range from the thinness of ordinary writing paper to several millimeters in thickness, depending upon the age of the individual and the construction of the facial bones. The thinnest portion of this wall is directly in the centre of the canine fossa. The infraorbital foramen lies in this wall close to its upper margin directly over the canine fossa, which fact must be borne in mind in performing extensive resections.

The posterior or sphenomaxillary wall is usually of even and constant thickness, and presents little of importance in the study of the accessory sinuses. The superior or orbital plate is of interest on account of the dehiscences which it frequently presents, and its close proximity to the orbit, as well as the fact that the infraorbital vessels and nerves are practically enclosed in its walls.

The size and capacity of the sinus depend largely upon the amount of bone reabsorption which has occurred, as well as the sex and age of the individual. The dimensions of an average maxillary sinus would be approximately; height 3.5 cm; breadth 2.5 cm; depth 3.2 cm. The normal capacity may be put at about 10-16

c.c. The interior of the maxillary sinus is not always smooth, but quite often presents partial septa which are usually situated on the floor and in the superior internal angle. The formation of complete partitions in the sinus is, fortunately, of rare occurrence.

The mucous lining of the maxillary antrum consists of three layers; ciliated epithelial, tunica propria and periosteal; the two latter, however, are so intimately connected that to all intents and purposes they form one.

The glandular supply is very meagre, being confined for the most part in region of the ostium. The entire thickness of the combined layers is rarely more than .02 millimeters. It is especially loose around the ostium and prone to oedematous swelling on slight irritation.

The mucosa receives its blood supply from a branch of the nasal artery which penetrates the ostium, as well as through the pars membranacea.

Studying the sinuses in the order of their size and surgical importance, we now pass to a description of the frontal sinus.

The frontal sinus, lying in the ascending ramus of the frontal bone, takes the shape of a pyramid with the base lying inferiorly. It possesses three walls; an inferior, a posterior and an anterior. The anterior wall is composed of cancellated bone tissue and varies in thickness from 1-16 to 5-8 of an inch, the heaviest portion being directly over the superciliary ridges. The posterior wall is much thinner, rarely exceeding 1-16 of an inch; however, it is composed entirely of compact bone tissue, which somewhat compensates for its lack of bulk. The inferior or orbital wall is the thinnest, and at its anterior and internal junction directly inside of the orbital ridge, seems to show a decided tendency towards thinness, for at this point swelling and bulging outward of the bone may occur in some cases of chronic sinusitis.

While the normal sinus may be said to be bounded in front by the supra-orbital portion of the frontal bone, behind by the cerebral wall, and below by the orbital plate of the same bone, it assumes such a variety of sizes and shapes, for the purpose of comparison, we will accept the arbitrarily-chosen normal frontal sinus as suggested by Hajek.

We will thus assume that the normal sinus extends from the median line to the supra-orbital notch, and from this point by a concave line back to the median line.

This may vary from complete absence of the sinus to its spreading to extensive proportions; thus it may extend laterally to the superior orbital process of the malar bone, or superiorly to a point high up on the vertex, or posteriorly to the lesser wings of the spenoid.

The shape may be regular, but it is usually extremely inclined to the opposite, assuming all sorts of fantastic forms and directions, depending upon the amount of re-absorption the bone has undergone.

It apparently is quite independent of its fellow on the opposite side, as one side may be fully developed, while the opposite side practically fails; in fact the two sides are perhaps never exactly similar. The left side is usually larger than the right.

The two sinuses are separated by a bony septum whose position may greatly modify the relative size and shape of the sinuses, as it is capable of showing great deviations at the expense of the cavity toward which the deviation occurs. Complete absence of the septum never occurs, although one sinus may occupy the entire frontal region, in which case but one opening into the nose is present. The septum however is practically always constant in one position; namely, at its origin directly behind the articulation of the nasal bones. At this point it is straight and situated in the median line, and should a deviation occur, it takes place above this point.

The inferior wall or base of the sinus is not flat, but is the shape of a small

inverted pyramid with an aperture at its apex which is known as the frontal ostium and is the means of communication between the frontal sinus and the nose. This ostium may empty directly into the nose, or into an enclosed duct which empties into the nose. This naso-frontal duct is not present in every instance, but is formed as follows:

The anterior inferior extremity of the frontal sinus is constructed by the impingement of the anterior superior nasal spine which helps form the frontal ostium. The ethmoidal bulla is usually situated several millimeters posterior to this structure, thereby allowing the infundibulum to expand; however, when the bulla ethmoidalis lies anterior to its normal position, instead of the infundibulum being wide, it is narrowed into a duct which is closed in, laterally, by the anterior attachment of the middle turbinate. Thus it may be seen that the duct when present is situated at the superior end of the hiatus semilunaris—in fact, is a continuation of that structure into the frontal sinus. Its length varies from 1-8 to 1-2 an inch, depending upon the encroachment of the ethmoidal bulla.

This relation of the hiatus semilunaris does not always exist however, as the hiatus assumes two different anatomical formations; (1) Direct method of emptying; (2) indirect method. By direct method is meant that the hiatus leads directly into the ostium of the frontal sinus without the intervention of any anatomical hindrance. The indirect method presupposes the presence of an infundibular cell situated in the hiatus so that it forms a blind ending to this structure, the frontal ostium being situated farther above.

The interior is usually not smooth, but shows various irregularities. Partial septa hiding great recesses are often seen, sometimes making the sinus appear to be double. Cases have been reported in which these septa have been complete, thereby forming an enclosed cell within the frontal sinus which was isolated.

The frontal sinus is lined with a mucous membrane which is quite similar to that of the other accessory cavities, being exceedingly thin and adherent to the bone. Mucous glands are even more sparsely met with than in the maxillary sinus.

The blood supply is through the ostium from branches of the spheno-palatine. The venous circulation anastomoses in several directions; (a) externally into the facial vein; (b) internally into the nose; (c) posteriorly into the dura; (d) internally into the orbit. This fact must be continually borne in mind when impending comlications threaten.

Next in the order of surgical importance, we now come to study of the ethmoid cells, which of all the other sinuses are perhaps the most baffling to the descriptive powers of the anatomist.

The ethmoid cells embrace all that portion lying between the two lateral plates of the orbit. It is composed of two capsules with a partition (lamina perpendicularis) between. The capsules have a prolongation at their internal inferior angle corresponding to the middle turbinate. The external inferior angle or body of the capsule represents the bulla ethmoidalis, and is the most dependent portion of the cellular structure.

Immediately beneath the bulla may be observed the uncinate process, which at its curve is the lowest portion of the ethmoid bone. Along the internal lateral wall of the capsule a projection occurs which represents the superior turbinate. This is not a true turbinate bone, but rather formed by an indentation in the body of the ethmoid.

The anterior boundary of the capsule is represented by the uncinate process; the posterior border corresponds to the anterior sphenoidal wall, or when present, to the spheno-ethmoidal fissure.

It will be observed that the capsule is composed of several furrows running in oblique direction from behind forward, and below upward. As these represent the fundamental ground work of the entire structure, it would be well to apply the scheme of Seydel for our further consideration of the labyrinth.

For illustrative purposes, let us suppose that a box was fitted up with four curved partitions, three complete and one partial one. The three posterior partitions extend completely from top to bottom, making these closed spaces, while the anterior incomplete one reaches from the bottom but half way to the top. The box is now covered with a lid which extends some distance below the lower edge

The ethmoidal capsule may be compared with this structure. The lid which corresponds to the middle and superior turbinates is raised, bringing into view the partitions which correspond to the lamellae of the various structures which enter into the formation of the labyrinth.

Partition, or lamella No. 1, represents the uncinate process; No. 2, the bulla ethmoidalis; lamella No. 3, the middle turbinate, and lamella No. 4, the superior turbinal process. Above these grooves lie the network of cross lamellae which constitute the ethmoid cells.

The number and size of the cells depend upon the position of the lamellae. The number of cells in each labyrinth varies in the normal subject, the lowest number being perhaps two or three, the highest about ten or twelve.

The ostia of the anterior cells lie beneath the middle turbinate in the middle nasal passage, while those of the posterior labyrinth empty into the superior nasal passage below the superior turbinate. Each cell has its separate outlet, although some may open into others before finally appearing in the nasal cavity.

The total capacity of the entire labyrinth approximates 8-10 c. c. The mucosa lining the cells is similar to that of the sinuses except somewhat thinner. It contains some few glands—sufficient to keep the surface moist.

The ethmoid obtains its blood supply from the superior nasal branch of the sphenopalatin as well as the anterior and posterior ethmoidal which springs from the ophthalmic artery.

Veins are divided into two groups; (1) Ethmoidal veins returning along the course of their respective arteries, penetrating the anterior and posterior ethmoidal foramina into the orbit, finally emptying into the ophthalmic vein which empties into the cavernous sinus. (2) The ethmoidal veins on the **Cribriform Plate** anastomose freely with the veins of the dura mater and the superior longitudinal sinus. These explain why thrombosis of the longitudinal and cavernous sinuses can occur from purulent ethmoiditis, and why cases of meningitis following ethmoiditis have occurred without the intervening bone being affected.

This brings us to a consideration of the sphenoid sinus which is irregularly cuboidal in shape and occupies the body of the sphenoid bone, being situated directly behind the ethmoidal capsule at the posteror and superior portion of the nasal cavities. In the fully developed stage it presents a cavity which is capable of great variations in shape and size, depending upon the amount of re-absorption of spongy bone which has occured.

The sinuses are usually two in number, separated from each other by a partition or septum which, like that of the frontal sinus, is capable of deviating to one side, thus making one side larger than the other.

Complete absence of this septum, thus throwing the two sinuses into one large cavity with a single ostium, has been observed. The ostium of the sinus is situated in the nasal portion of the anterior wall, usually in the upper third and seldom below the median line. Its shape is oval in the long axis or round and measures about 1-3 mm. in diameter.

The average capacity of the normal sphenoid sinus as taken from 180 specimens at random may be placed at 5-6 cm. The mucous lining of the sphenoid sinus is of a dull grayish color and extremely thin, denoting a lack of superficial vascularity. It does not adhere strongly to the bone, but may be readily removed with the forceps.

As with the other sinuses three layers may be separated; mucous, submucous, and periosteal. Glands are sparsely supplied except in the region of the ostium.

The veins of the anterior wall empty into the nose through the ostium, and into the ophthalmic, and those of the sides and roof, into the coronary and cavernous sinuses. These form an important factor in cerebral complications, for in the periosteal layer a network is present which penetrates the bony wall in numerous places and empties directly into the cavernous and coronary sinuses.

The arterial supply is obtained from the spheno-palatine, pterygo-palatine and vidian arteries. The spheno-palatine through the ostium, and the spheno and pterygo-palatine through the floor.

Passing from their structural anatomy to the **Physiology** of the accessory sinuses, we are presented with numerous theories which have been advanced regarding their precise function, and even at the present day many authorities will hold almost directly opposite views as to their significance.

Among the theories which have been advanced from time to time, I shall mention four, which perhaps have the most semblance of probability; (1) Remains of certain rudimentary structures which in the lower animals serve as important adjuncts to the sense of olfaction. (2) An adjunct to olfaction by evenly distributing the inspired air in the olfactory region. (3) To lighten the bones of the skull. (4) Adjunct to respiration. Moistening the inspired air.

The extensive experiments of "Braune and Clasen" have definitely shown that a certain amount of air change takes place in the sinuses during respiration. The volumetric changes are not in ratio to the amount of inspired air passing through the nasal chambers, but depend more upon the degree of one inspiration, thus, for example in the maxillary sinus during ordinary respiration the air change is relatively small, while in forced inspiration, particularly as the alae of the nose are drawn in, the rarefaction of the air in the sinus will equal that occurring in the nasal passages.

A different function may be attributed to the ethmoid cells than to the sinuses proper, however great our ignorance of the latter may be. In the first place the anatomical configuration of the two structures is totally dissimilar. The sinuses (frontal, maxillary and sphenoid) are true cavities enclosed by bony walls and outside of, or adjunct to, the nasal cavities proper. While the ethmoid labyrinth on the other hand may be likened unto a sponge, and is contained within the boundaries of the respiratory portion of the nose.

From these anatomical facts, and from the experiments of "Paulsen and Zwaardemacher" and others on the air currents passing through the nose during inspiration and expiration, we may state definitely that this structure exercises great influence on the warming and moistening of the inspired air.

This brings us to the consideration of the pathological changes in the mucous membrane of the sinuses, but before doing so, however, it may be well to briefly review the normal histology.

The normal histology of the lining membrane of the sinuses is, to all intents and purposes the same, i. e., the microscopic appearance of the antral mucous membrane is practically identical with that of the sphenoid or frontal sinus; the ethmoid cells present some slight difference chiefly on account of structural peculiarities.

A cross section of the mucous membrane of the maxillary sinus under the low power of the microscope will show the following structures; the epithelium is composed of ciliated variety similar to that found in the respiratory portion of the nose, a subepithelial layer containing the blood vessels and glands, the latter occurring as isolated clusters scattered here and there. This layer is so intimately associated with the periosteum that it is not possible to distinguish a dividing line.

The pathological changes which occur in the course of purulent inflammation depend upon several conditions: namely, the length of time the disease has prog-

ressed, virulence of the attacking micro-organisms, resistance the sinus has shown toward the disease, and the favorable or unfavorable drainage conditions. These conditions are so intimately associated that it is impossible to differentiate them, so far as the microscope is concerned; therefore, they had best be considered under the more general heading, acute and chronic.

In the acute stage the microscopic appearance of the epithelium is unchanged, while the mucous membrane as a whole is oedematous, intracellular spaces filled with lymph, more or less round-cell infiltration depending upon the degree of irritation, punctiform hemorrhage through the connective tissue, blood vessels engorged, glands unchanged.

If the pathological process continues, the round-cell infiltration becoming pronounced; petechial hemorrhage and desquamation may occur in the mucosa. The round-cell infiltration may penetrate the deeper layers until the bone is reached with subsequent tendency to ulceration carries.

Complete resolution cannot occur after this stage has been reached for the destruction has been so extensive as to preclude the possibiltiy of nature overcoming these pathological changes. The mucosa is thickened from overgrowth of connective tissue. The lining epithelium having lost its cilia is metamorphosed into the squamous or pavement variety.

The glands are for the most part destroyed and the blood supply greatly diminished by the obliteration of the finer arterioles and veinlets. If restitution does not occur in a given length of time, the disease may be said to have become chronic.

Chronic sinus inflammation exhibits two types; hyperplastic and ulcerative. These forms are not entirely dis-associated as transitional stages are found in the same sinus. In the hyper-plastic, the mucous membrane is of a grayish color, often wrinkled and papillomatous and more or less loose from the underlying bone. Hyperaemia, while present, is not so marked as in the acute stage. Oedematous changes occur in the mucous membrane which are similar to the ordinary nasal polyp. There is thickening of the connective tissue, and in some cases new growth formations may be found.

Retention cysts often occur from constriction of the neck of the glands by the infiltration and connective tissue formation.

The true ulcerative type is probably not found as such, but is rather a hyperplastic condition associated with ulcerosus.

The relative extent of this pathologic process seems to depend more upon the pressure to which the mucosa is subjected than to the micro-organisms infecting the sinus unless the organisms be especially virulent, in which case the ulcerative process may extend into the bone. Actual destruction of a part of osseous wall of a sinus, however, is relatively rare.

Not only do we have ulceration and necrosis due to pressure of the internal secretion, but there may be sufficient pressure to produce dilitation of the sinus walls in certain cases; namely, mucocele, pyocele and latent empyema.

Mucocele is a condition due to an accumulation of mucous secretion in a sinus resulting from obstruction to its outlet, with ultimate distention of the walls of the cavity. The sinuses most frequently affected are the frontal and anterior ethmoid cells. Mucocele of the sphenoid sinus perhaps never occurs.

The aeteology of these mucoid accumulations is not entirely clear, but suffice it to say, that the ostium of the affected sinus has been gradually occluded by chronic catarrhal inflammation; the glands of the sinus mucosa continuing to secrete, the end result must be a gradual distention of the walls, with ultimate rupture.

If the mass is allowed to accumulate, considerable deformity, particularly from the standpoint of the orbit, will occur, and irreparable damage may be done

to the eye of the affected side. If by any chance a mucocele becomes infected, a pyocele immediately results, changing the process from an ultra-chronic one to one of acuteneness, depending upon the virulence of the infection.

If sufficient time elapses, there may be cholesteatoma formation, or a metamorphosis of the secretion into a cheesey mass, the "Verkassung" of our German confreres.

This condition occurring during the course of a sinusitis is due to the regenerative ability of the sinus mucosa, as well as the attenuated virulence of the infecting micro-organism.

The inflamed mucous membrane recovers little by little, until it is able to withstand the attacks of the micro-organisms. The retained secretion, not being able to escape, becomes stagnated, loses its moisture, and a fatty degeneration of the pus corpuscle results. After a time this mass becomes more or less solid with certain characteristics of soft cheese.

Latent empyema is a term by which we understand the presence of a well defined suppurative process within a sinus which may continue without giving rise to appreciable symptoms, and being probably due to infection by micro-organisms of slight virulence. This condition is in reality a mild catarrhal process, nevertheless may become virulent and even fatal under the influence of certain forms of irritation.

Malignant tumors of the sinuses are not as common as is generally supposed, the one most frequently met with being carcinoma. Any of these may excite a true purulent sinusitis through breaking down and ulceration of the mucosa. The tumor itself usually remains unrecognized until tumefaction sets in.

In closing, I wish to say that this paper was not intended as a classical exposition of the subject matter, many points of interest having been purposely omitted; but, in anticipation of the papers which are to follow, I have endeavored to present to your minds a few only, of the more salient features of the anatomy, physiology and pathology of the accessory sinuses.

SINUSITIS

By J. H. BARNES, M. D., Enid, Oklahoma.

The cause of sinus disease begins in childhood when they are having colds a greater part of the time during the cold winter months. Their nose is closed from breathing and discharging pus for one to three weeks every time the weather changes or when they get their feet wet. These children have adenoids and if they do not disappear early in child life the result is sinusitis in later life when all the sinuses are well formed. The obstruction to breathing in these adenoid children will cause the greater per cent of malformations of the septum of the nose, such as deflections to left or right and spurs on either side. These are produced by the hard palate being pushed up from mouth breathing. In most cases of spurs and deflections of the septum, we find a high arched palate.

These malformations of the septum is the direct cause of most cases of sinus disease. When an adult of twenty to forty years of age has a severe infection in the nose from influenza, pneumococcus or staphylococcus or the ordinary cold, the drainage is bad in the obstructed nose and the result an extension of the nasal infection into the sinuses. If the swelling and obstruction is too severe, the cold may be several weeks in subsiding. If this is repeated a few times, we will have a chronic condition to follow. We seldom have sinus disease before twenty years of age, and if not before forty, seldom after this age. So sinusitis is a disease of young manhood, for men are more often affected than women, being less exposed.

Certain families seen to be addicted to frequent colds, children of tubercular parents, syphilitic families and those poorly clothed and nourished. Patients

with low vitality, such as heart disease, bright's disease, diabetes, over-eating and the loss of sleep and rest and exhaustion are some of the predisposing causes.

When the deflection of the septum is in the region of the middle turbinate, sinusitis is more apt to follow a very few colds. In this region is located the drainage canal of the anterior sinuses, the frontal, the maxillary and the anterior ethmoid. The posterior ethmoid and sphenoid drain into a sulcus just above the middle turbinate towards its posterior end, while the other canal is beneath the middle turbinate nearer the anterior portion. So any obstruction or irritation causing a swelling or enlargement of the middle turbinate may cause disease of one or all of the sinuses.

Every time a child has a cold there is a slight thickening of the mucous membrane of the nose, and this often repeated will soon bring about an obstruction, blocking up more or less the drainage of the sinuses into these two canals. A severe cold will cause the mucous membrane of the sinuses to become swollen, and this often repeated will cause some of the mucous and pus to remain in the sinus, and if the infection is severe enough or the bacteria is so virulent, the ciliated epithelial lining of the sinuses will be destroyed; then the sinuses are no longer able to clean themselves as they are able to do in ordinary infections, so our condition becomes chronic suppurative sinusitis.

In some infections, such as influenza, there is no pus; then we have the non-suppurative sinusitis. The acute attack is quite severe with great swelling and excoriation of the cilia of the turbinates and lining of the sinuses. There is a great deposit of serum and fibrin thrown out, and only a few attacks, or a moderately prolonged attack, will cause a chronic non-suppurative sinusitis. The swelling and the following hypertrophy may be sufficient to block the whole sinus.

The openings of all the sinuses are so small and located in a place that makes the sinuses pratically a closed sinus when there is the least of swelling of the mucus of the nose or sinuses. The frontal has the most perfect drainage and yet its opening, the infundibulum down into the hiatus semilunaris, is almost immediately closed when the sinus becomes involved.

The maxillary has a very small opening at the top of the sinus in the hiatus semilunaris under the middle turbinate, which is closed even by the swelling of the middle turbinate. The same is true of the sphenoid, its opening being at the top of the sinus above the middle turbinate.

The anterior ethmoid opening into the hiatus and the posterior ethmoid opening above into the posterior sulcus with the sphenoid. So, when considering the anatomy of these sinuses, we can easily see that a diseased middle turbinate can cause diseases of all the sinuses and hence the middle turbinate becomes the key to the whole pathology of the sinuses. When the sinuses become obstructed it may become catarrhal or pustular. When there is no pus the ciliated epithelium is not destroyed; if it is the acute form it will return to normal, but if the obstruction continues and the process becomes chronic the membrane becomes hypertrophied, lining the cavities. This condition may continue indefinitely and may later become pustular.

In the pustular form the ciliated epithelium is often destroyed, depending on the virulency of the organism causing the disease. The bony tissue may become involved with increasing necrosis and attack adjacent structures such as the orbit, teeth, brain and optic nerve.

When the orbit is involved there is watering of the eyes, redness of the conjunctiva, the eye ball is sensitive and painful. When the nerve is attacked, which is more apt to be from the sphenoid, there is a dullness of vision and gradual loss of sight. When the necrosis extends into the brain any form of brain disease may be expected.

We do not always have pain with sinus disease. When we do it is very characteristic and is often a severe type, being of the pressure form.

The chronic suppurative sinus gives least pain of any form. We may have suppuration with necrosis of bone and very little symptoms other than a discharge. The acute and the chronic non-suppurative forms give the greatest pain. The pain in the acute frontal sinus disease is of a severe type. It begins with a fullness in the head and nose, soon becomes of a pressure nature, feels like head is too full. Then it localizes over the eye with tenderness on pressure over the frontal sinus and just under eye brow next to the nose. The pain comes on after the patient is up for an hour or two, gradually gets worse, and towards evening the pain gets better and the patient is able to rest all night. This is repeated the next day; the pain begins about the same time and runs the same course each day. This was called "sun pain" by some of our old school doctors, for it seemed to come and go with the sun. The duration is from two to five days. Repeated attacks will lead to suppuration.

The maxillary sinus is not nearly so painful as the frontal in acute inflammations, there being more room for expansion when it swells. There is a tenderness in the canine fossa on pressure just internal and below cheek bone. The teeth feel too long and tender when chewing on the affected side. The eye may become red and tender, with some headache, worse when stooping over. Sometimes feels like something rolls to the affected side.

The pain in the ethmoid sinus is felt between the eyes and on pressure at the side of the nose.

The pain in the sphenoid and posterior ethmoid is worse through the temples and the base of the skull—felt at back of neck.

The greater the obstruction in sinus disease the more pain we have. The obstruction is best observed in the middle turbinate region. The septum is seen to be deflective against the middle turbinate. Ridges on the septum very near the floor will cause a damming up of the secretions and an obstruction.

Any discharge of pus from the nose for more than a week or ten days is always to be found in one or more of the sinuses. We have only to look and determine from its relation to the middle turbinate and by exclusion know the particular sinus it comes from. The pain will also aid us.

The acute pustular form is sometimes very painful and if we have necrosis it will be worse at night.

The chronic non-suppurative is a form that is often over-looked and diagnosed as a rhinitis, or many times it is called hay fever.

The symptoms are very much like hay fever. There is a boggy, stuffed feeling of the nose, with a water discharge, worse at times. Sneezing and itchy feeling in nose. There is more or less headache and with the acute attacks on a chronic condition the eyes water and become red and all the above symptoms are exaggerated.

This condition in some form, either light or severe, exists winter and summer and the attacks come at any season and usually several attacks during each season, winter and summer. It does not come with the blooming of any certain flower at a particular time each year as does hay fever. When we examine the nose we will find the middle and superior turbinal regions of a polifoid nature, bathed with thin mucous and the whole space occluded.

We are not able in the time given us to tell one-half of what should be said about etiology, pathology and symptoms of sinus diseases, but if we can study this outline we will be able to better understand this is one of the great bug-bears of nasal surgery.

Etiology. 1. Primary. (a) Adenoids; (b) Spurs and deflective septums. 2. Secondary. (a) Family; (b) acute colds; (c) general conditions of patient.

Pathology. 1. Acute catarrhal. 2. Acute suppurative. 3. Chronic suppurative. 4. Chronic non-suppurative.

Symptoms. 1. Pain. 2. Obstruction. 3. Discharges.

THE ACCESSORY SINUSES OF THE NOSE
Treatment—Conservative and Radical

By G. E. HARTSHORNE, M. D., Shawnee, Oklahoma.

When we undertake the treatment of the sinuses we necessarily must consider the ducts connecting them with the nose, which in turn brings the lacrimal duct and sac into consideration, for in my mind I think it is more often the seat of obstruction and infection than any one of the other ducts leading from the nose—rather to it.

Conservative treatment includes astringent and antiseptic collyria instilled into the eyes to be drained down the duct; treatment of the mucous membrane of the nose, especially around the nasal orifice of the duct, and I think the silver nitrate in 4 per cent solution is the best remedy we have for the latter, and argyrol and the weaker solutions of zinc sulphate for the former; also under this head we should, if necessary, slit up the canula and probe the duct, repeating the probing every four or five days, and in the meantime keep up the instillation of astringents in the eye. If pus is present in the sac, it should be thoroughly irrigated with 1-5000 bi-chloride, and if the discharge continues for any length of time after using the irrigation just mentioned, it will hurry the recovery by syringing the sac with a one per cent silver nitrate solution at least twice a week. It only takes a few drops of the solution to fill the sac and care should be used to prevent its overflowing onto the cheek, as it causes such a strain when exposed to the light.

Radical treatment of an occluded duct should be confined to forceably probing it, unless there is a dacryocystitis, then complete removal of the lacramal sac is about the only way to insure success; and DeSwitz has recommended the removal of the lacrimal gland. I have never seen the gland removed and believe that the resulting loss of moisture would produce a worse complication than the epiphora. It is very easy to induce local anesthesia with novocain and adrenalin to remove the lacrimal sac, unless the patient is very nervous or a child· then it will be necessary to use a general anesthetic.

The antrum of Highmore has been treated conservatively for many years by dentists, who extracted either the second bi-cuspid or the first molar, or both, and drilled an opening into the antrum. We surgeons used to do the same thing quite often, but in later years, I am glad to say, we have abandoned the procedure for more scientific measures. Drainage through such an opening only resulted in allowing the pent-up secretions to escape when they made considerable pressure, and necessitaed a constant watching and treatment of the opening and and the wearing of a plug or plate to prevent constant drainage into the mouth. It also produced a condition that would always be with you, for there were rare cases of cure from such procedures. The first attention to either an acute or chronic sinusitis should be directed to the nasal mucous membrane and turbinates. The nose should be gently sprayed with astringent and cleansing liquids, the system should be put in as good general condition as possible by free catharsis, in acute attacks the administration of small doses of morphine and atropine relieve the pain and dry the secretions, that is, check them. I used to hesitate to use morphine on account of the slight swelling it produced of the nasal mucous membrane, but I have given it a pretty thorough trial and now use it almost universally in affections where the ducts are hyperemic. If no benefit results after a few days, we are sure to have an increase in our pressure with its consequent pain and swelling. When conservative treatment fails we will have to choose between several modes of procedure. The direct application of a four to ten per cent silver nitrate solution over the inferior and middle turbinate and under the middle one will often produce results, especially in acute attacks, where other remedies have utterly failed.

My operative treatment of the antrum has been confined to less than a dozen cases and three of them were of long standing and had sinuses established, which

indicated the procedure most applicable. In the elective cases I have always used the combined methods of opening the antrum through its anterior wall, and after inspecting the interior of the antrum a counter opening is made through the thin plate of internal wall, coming out through the middle meatus about an inch from the anterior tip of the inferior turbinate. I have used a small wedge shaped augur for making my initial opening into the bone and then enlarging it in any direction I saw fit, with a Kerrison's bone cutting forcep or gouge. The pus and lining membrane should all be removed and the cavity packed with one piece of gauze, saturated with benzoin compound, and either end allowed to protrude from each wound. After the first dressing, which should be done in the third day, the gauze is not allowed to protrude from the wound in the anterior wall, and only a small piece of gauze can be introduced into the nasal opening. Irrigation should be kept up daily until all discharge stops, which will vary from two to six weeks, usually, though some are more obstinate than others, and months may pass, and even a second operation be required. Most of my troubles have been from persistent granulations, and keeping my patient encouraged enough to keep up the treatment. I had one case several years ago where there was a sinus opening at the superior and external angle of the antrum, involving the malar bone as well as the maxillary; due to syphilis, and with strong constitutional recovered completely in five weeks. I enlarged the sinus already there and made counter opening in the internal wall as described. I do not believe we are ever warranted in doing as extensive an operation as is advocated by the Denker method; I believe it is one of the operations applicable to clinics, where "the galleries are to be played to;" no one does them in private practice.

Acute inflammations of the ethmoidal cells are usually treated successfully by the same methods as outlined in treatment, medicinally, of the antrum, and as are also all the other accessory sinuses. Conservative operative measures are confined to removal of the anterior end of the middle turbinate, to permit drainage of the cells, and to deplete the remaining tissues by the hemorrhage produced by cutting off the soft parts. Radical treatment of the cells has been done by a wide range in degrees of procedure; from the simple curetting of the lower cell walls to the complete removal of the cells en masse, and the removal of the cells, nasal bones and anterior sphenoidal cell walls; but here, again, especially in the case of Moure's operation, I think the main object is to have something to write about that is original, and a new way to demonstrate one's technical skill. Ballenger's method of removing the cells en masse is probably, in his hands, a very good procedure, but I have not seen a case that I felt warranted in attempting it. I have removed all the posterior cells and the anterior wall of the sphenoidal sinus, and have had very gratifying results. The most trouble I have had has been from hemorrhage, which in two different instances has caused me to lose sleep; hemorrhages coming on in one case three days after the operation, and in the other several hours afterward. And in both cases I had used about one per cent solutions of adrenalin chloride, as I had also done in all of my sinus work. I think I would use the orbit-ethmoidal method if my patient already had a sinus opening into the orbit, as is often the case; but so far I have had none where that condition existed. Referring to the subject of hemorrhages again, I will relate an experience I had some two months ago. A young man of about twenty-five was in the hospital at Holdenville with a broken leg, and when about ready to leave decided he would have his nose operated upon for a chronic ethmoiditis, and had Dr. Linn call me over there to do it. I removed the middle turbinate and curetted the ethmoidal cells and sphenoidal sinus into one cavity, on one side only. I packed the cavity pretty snugly with one long strip of iodoform gauze, and the second day he came to Shawnee to have it redressed. On account of his being on his way to Oilton, where he probably would not find a doctor at every corner, I repacked the cavity and instructed him to remove it, or get a doctor to do it the second day. He wrote me about a week later that he had had the gauze removed as I had directed and that during the night of the third day following he

had awakened just in time to get help to prevent his bleeding to death. Of course, I do not know how much he did bleed, but the doctor that he called in told him him that I should be prosecuted for not having it packed for several days longer. I had given him a spray of campho-menthol in liquid albolene.

Outside of medicinal treatment of the sphenoidal sinus I have not had much benefit from conservative treatment. I have irrigated the sinus in years gone by, but now open it either through the ethmoidal cells or enlarge the normal opening with the Kerrison punch, curette it very gently and pack it with one piece of gauze for two or three days and then wipe it out with four per cent silver nitrate twice a week, and irrigate it every day as long as any discharge is present. After the middle turbinate is removed there is not much trouble in treating the sinus if the ethmoidal cells are not involved.

The frontal sinus has been treated for a long time by different methods of enlarging the normal opening, but I have not been very successful in irrigating the sinus without enlarging the duct, and was just a little bit afraid to do so much bone cutting entirely by the sense of touch. Medicinal remedies internally have given me good results, when an acute condition was present, with the application of the silver nitrate to the middle meatus, and the middle and lower turbinate. I have twice removed the anterior end of the middle turbinate in chronic cases and tried irrigating the sinus with weak permanginate and normal salt solution, but after several weeks resorted to the conservative radical operation. All the time I was irrigating these cases I was having the patient use a watery solution of glycerine and iron as a spray.

So far I have only found it necessary to remove part of the bone at the junction of the orbital plate and the supra-orbital ridge, between the supra-orbital foramen and the nasal bone, only making the opening large enough to allow a free curetting of the sinus, and the ridge is not destroyed enough to make any marked deformity. After curetting the sinus I enlarge the frontal-nasal duct from the top and can see pretty well where I am curetting. I close the upper opening after packing the sinus lightly with either iodoform or benzoin compound tincture gauze. The third day the gauze is removed through the fronto-nasal duct, and irrigation is kept up until all drainage subsides. The middle turbinate should be removed before making the external opening. I also apply the silver nitrate solution to the mucous membrane of the affected side while keeping up the irrigations. The same as in the ethmoidal radical operations—I do not believe the necessity ever exists for a Killian operation, except where necrosis has already made the operation only one of smoothing up and curetting away dead tissues. I saw Chiarie and Slimmer each do one Killian, and saw several pateints who had been operated upon some time before, and will say they looked something like I imagine a shell from a German "42" would leave a field of loamy soil. They both said that it was not an operation for private patients, and as few, if any, of us are staging any plays for the grand stand, I think we should all condemn it.

Discussion

Dr. Todd, Oklahoma City: I am sorry that I did not hear the first paper by Dr. McFarling, but Dr. Barnes has given us a particularly good discussion of the subject of sinusitis. It is one of the interesting subjects, because these conditions give us so much trouble. One of the phases of sinusitis that concerns me as much as any is in the acute infections with closed empyemata, and to know just exactly how much surgery I should do in these noses at this time. This was especially impressed upon me by a case which I handled in a very prominent family. This patient developed acute sinusitis following influenza, which as you know, is a type of sinisitus that is generally severe. In this particular case it affected the anterior ethmoids and the frontal sinuses. I tried to establish drainage by using astringents, cocaine and adrenalin chloride, hot douches, etc., but was not successful. The patient was a very sick woman. Failing in this, I concluded it was

necessary for me to enter the sinus to establish drainage. I removed the anterior end of the middle turbinate and had I done only this my patient would probably have come out all right. I went on and cleaned out the anterior ethmoids, removing the the anterior end of the middle turbinate. The result was my patient developed meningitis and was dead in three days. I have since changed my tactics, especially when I am pretty sure they have an infection following influenza. I do believe, gentlemen, we want to consider with a good deal of seriousness just how much surgery we are going to do in these very acute infectious cases. I think it should be our purpose to attempt to establish drainage without operative procedure, if possible, and wait until the pus becomes attenuated and the viciousness of the condition is somewhat subsided. The differential diagnosis in these cases is often difficult; I have a case right now that I declare to you that I am not quite sure whether I have the frontal sinus involved. There is no question about the anterior ethmoids being infected, but I am considerably in doubt whether or not the disturbance in the frontal sinus is due to the obstruction from the diseased anterior ethmoids, rather than a direct infection.

Another question that deserves consideration is how much operating should you do in the presence of pus in these old chronic infected nasal sinuses, such as removal of turbinates, ethmoids and resection of the septum for deflections. If the patient is not having an acute exacerbation, I operate at once and can report no serious or unpleasant results.

In making a differential diagnosis in these sinus infections, I follow much the same plan as suggested by Dr. Beeman Douglass of New York, with which you are probably all familiar. Using all the methods at our command I think most of you will agree with me that in some cases, at least, a positive diagnosis is rather difficult. I enjoyed Dr. Barnes paper very much indeed. I thank you.

Dr. A. W. Roth, Tulsa: Mr. Chairman: My experience has been that these acute frontal sinus cases do respond nicely to treatment, that we can shrink the tissues and with hot douches, establish drainage without operative work.

In the chronic cases, the removal of the middle turbinate in part, or in its entirety, and establishing drainage, leaving the nose in a condition that will not be a detriment to your patient the rest of his life.

Recently several cases have come to me which have undergone operation for ethmoid, sphenoid or frontal sinus trouble, in some of our Eastern cities. These operations were performed over a year ago. As I look into these noses, I wonder what will be the end, the enormous cavity, the varnish appearance of the mucous membrane. An atrophic condition which I am sure will cause more annoyance than the original trouble. On one, adhesions have formed, forming a curtain from the top of the nasal cavity down to a line even with the superior border of the inferior turbinate; there is a good drainage back of the curtain, but not free breathing, the sinus still discharging and many of the old symptons present.

All of these cases are far from being well and are seeking relief.

I feel that there is a great danger in this operative work when so much tissue is removed. The immediate results may be quite satisfactory, but as time passes, the case will certainly be greatly annoyed by the atrophic conidtion.

Dr. D. D. McHenry, Oklahoma City: There is one thing in these acute cases that has not been mentioned that has been very successful in my hands, and that is suction. The plan of shrinking the mucous membrane of and around the opening into the sinuses certainly helps. But after this, if you will put negative pressure in the nasal cavity by suction, you will drain the sinus much better. It is always necessary to teach the patient to hold the palate against the posterior pharyngeal wall, and this is not always easy to do. But by patience it can be done, and in my hands in the acute conditions especially, it is the most successful treatment I have used.

I am inclined to think the last speaker, if he keeps up the practice of doing sub-mucous resections in the presence of any acute infections, will sooner or later get into grief. If he does the sinusitis any good, he must necessarily go high up on the septum and so open an avenue of infection to the cribriform plate. Hayes of New York and others have reported deaths from meningitis from infection following sub-mucous resections, and I would consider doing one in an acute sinusitis only as a last resort.

Dr. Barnes spoke of the old sun pain being a sinusitis; I can not agree with that, I will agree that many cases of sinusitis are periodical. But I believe most of them are a malarial neuralgia. I am not much of a bacteriologist, and do not put all of these cases to the expense of a blood examination, and even when they have been examined and no plasmodia found I have seen many of them cured by strong malarial treatment. Have seen two cases the last ten days—one a relative and the other a physician—that were both cured rapidly by 40 grains of quinine daily for a few days. The thing that bothers me is chronic catarrhal sinusitis. Other men talk about having them and treating them but I do not see them. It may be my inability to diagnose them and I would like a little more light on the method of finding them.

Dr. Ferguson, Oklahoma City: I wish to emphasize the remarks of Dr. McHenry regarding the danger of operating on the sinuses during an acute attack. I believe that it is dangerous and sooner or later the one that follows that line will have reasons to regret it. It has been my practice in these cases of acute frontal sinusitis, or where the antrum is involved with acute inflammation, to simply break the middle turbinate away from the nasal wall, in this way allowing free drainage as well as breaking inflammatory adhesions, nearly always found in this location. This has given excellent results in my hands and in practically all cases it has been unnecessary to do a more radical operation.

Dr. Abernethy, Altus: As Dr. Ferguson has just stated about Dr. McFarling's paper, there is nothing further to be said, Dr. Barnes' paper was a very excellent one, also. I am anxious to hear all I can about the treatment of the acute condition of the nose. The very fact that we all have different opinions as to the best treatment shows there is a great deal yet to be learned about the various treatments being used.

My opinion is, and it is not worth much, as I have not had any extended experience to try, to preserve as far as possible all the anatomical structures. The tendency with so many of us younger men is to operate on everything that comes to us and I can say on one or two occasions I made a mistake along that line myself. I remember now a case I had last fall of acute frontal sinusitis, which was a very painful one. I made two attempts to drain through the normal opening, the ordeal of which was so severe the patient did not come back. After three or four days I met the patient and asked him how he was getting along and why he did not come back for his treatment? He answered me by saying; "Doc, you just liked to have killed me." By persuasion I got him to come back to my office and by using conservative methods I soon established thorough drainage. The point is this: the acute inflammation had subsided and by the use of cocain and adrenalin, the tissues were contracted so the drainage could be established with comparatively no pain. As a matter of fact, if we do as one doctor suggested, remove turbinates in these acute conditions, the patient will always be a sufferer from dryness of the pharynx and scab formation in the nasal space which is an embarassing and deplorable condition to have.

I have had one or two patients suffering this way who told me they wished they were dead. I remember seeing a lady who had been treated by the most eminent specialist for these symptoms for six years without any improvement whatever. I think we should preserve all the anatomical structures possible in nasal operations, thereby saving our patients all the discomforts of dry nasal passages, bad breath and all unhappy symptoms, the result of too radical operations in the nose.

ACTIVE IMMUNIZATION BY VACCINE THERAPY.*

By W. H. BAILEY, A. B., M. D., Pathologist to Wesley Hospital, Oklahoma City, Okla.

At one time in the history of medicine, the diagnoses of infectious diseases was only to be approached by observation of the clinical signs or symptoms, as the temperature, pulse, rash, etc. The finding of specific etiological agents, as the tubercule bacillus in tuberculosis, the diphtheria bacillus in diphtheria, etc., was a long step forward in diagnostic methods. Within the last ten years or so investigations have been made to discover the presence of anti-bodies formed by the reaction of the patient to the infectious organism. From these experiments have been developed the newer diagnostic methods as the Widal agglutination test for typhoid, the Wassermann complement-fixation test for syphilis, and numerous other serological reactions.

The course of a disease depends not only on the nature, virulence and number of infecting organisms, but also upon the reaction of the infected animal. It is a balancing reaction the same as any chemical equation. The means employed by the body for its protection are by cellular and serologic activity. Tuberculosis causes the tubercle as its dominant cellular reaction, so also syphilis has its peculiar picture—the plasma cells. The bio-chemical reactions that take place in the body fluids are not so easily discovered nor so well understood.

Ehrlich's side-chain theory is the working plan on which the serological reactions were built. It soon became evident that many natural or physiological processes were of a similar nature to the pathological reactions that lead to the formation of anti-infectious bodies.

Closely associated with serum diagnosis is serum or vaccine therapy. The anti-bodies, which are the reaction bodies formed, are of several different classes, depending entirely on their form of activity, such as agglutins or precipitins, which have the property of grouping their specific organisms into small clumps or precipitates; as antitoxins which neutralize the poisons or toxins; as bacteriolysins which destroy the bacterial bodies themselves; and as bacteriotropins or opsonins which so alter the bacteria that they can be more easily destroyed by the cells of the body, especially the leucocytes. These are the known modes of reaction and it is probable that there are other unknown methods of immunity.

We have two broad divisions of immunity; active and passive. Then we have the division of acquired and natural immunity. We also speak of immunity as relative and absolute, apparent and true. Althought there are numerous individual differences between the classes of anti-bodies, they all have one quality in common, that of specificity, that is, each is formed by an individual specific exciting substance or antigen. As this law is fundamental in serum diagnosis so also is it in serum therapy.

Active immunity may be divided into four classes. First, with living virus. Second, with dead virus. Third, with bacterial toxins. Fourth, with bacterial extracts.

Immunity from living virus most closely simulates the immunity given by overcoming the disease itself. Frequently a living virus multiplies so rapidly that before the animal has time to overcome its effects or manufacture anti-bodies, it has been killed by the toxin produced by the virus. Therefore, various methods have been taken to weaken or attenuate the virus so that it will give the immunizing effect but not produce any toxic symptoms. This is done primarily in two ways, either reducing the number of bacteria injected or diminishing their virulence. The first method has not been tried in man because the infectious nature of the bacteria might allow them to increase rapidly enough to cause a true course of the disease. Instead the second method, that of inoculation by an attenuated virus, is employed.

*Read before the Wesley Hospital Clinical Society, June, 1916.

The best known example of this latter type is vaccination against smallpox, the credit for the discovery of which belongs to Jenner. This consists in inoculation of an attenuated form of the smallpox germs, which diminution in virulence has been brought about by passage through a calf, which animal is less susceptible than man.

Pasteur recognized this principle as having a general application,. He found that rabies could be transmitted to a dog by injecting it sub-durally with a small portion of the brain substance of a rabid animal. This ordinary virus is known as "street virus." The normal incubation period is from three weeks to six months or longer. By passing the virus through a series of monkeys, the incubation period is so much lengthened that it finally becomes practically inocuous. On the other hand its virulence may be increased by passing it through a series of rabbits, which animals are very susceptible to rabies, until the incubation period is reduced to six or eight days. It cannot be shortened below this time, and this virus is called "fixed virus". Instead of making use of the weak ened "monkey strain" for treatment, the strong "fixed virus" is used after it has been attenuated by drying over potassium-hydroxide, at a temperature of 23 to 25 degrees C. It was found that if the spinal cord of a rabbit which has developed "fixed virus" rabies is dried eight days, its incubation period when injected into another rabbit was very much prolonged, and if dried much longer than this, its virulence was entirely lost. The treatment, therefore, consists of various schemes or working plans for injecting first the weakened virus, and gradually increasing its strength until on the last day of the treatment, one that has been dried only one day is given. The "serum," or vaccine proper, consists of an emulsion of a section of the spinal cord of a rabbit that has developed "fixed virus" rabies.

Other methods of attenuating the infectious organisms aside from passing through less susceptible animals and drying, are growing the bacteria at too high a temperature, exposing them to direct sunlight, disinfectants and moderate heating.

The mixing of bacteria with their specific serum, which is obtained from animals that have been inoculated with these bacteria, also diminishes their virulence. Bordet has termed these "sensitized bacteria." In this mixture the bacteria unite with their specific anti-bodies, they are later removed from the serum by centrifuging and the "sensitized bacteria" used as the vaccine. Practically the same result can be obtained by injecting the bacteria and at the same time the proper amount of their specific serum. This is known as the "simultaneous method" and is very successful in the treatment of hog cholera.

2. Immunization with dead bacteria, or "bacterins," is claimed by some not to be an immunization against the disease, but against the bacterial bodies. In practically all the vaccines made from dead bacteria the organisms have been killed with heat, and a weak antiseptic added to the bacterial emulsion. Care must be taken to get the temperature high enough to kill the organisms but not to allow it to go so high as to destroy the immunization power of the bacteria. For the ordinary bacteria as typhoid, colon, staphylococcus, streptococcus, and pneumococcus, one hour at 58 to 60 degrees C is the temperature to use. The bacteria are grown 24 to 48 hours on a solid medium. The culture is washed off with sterile physiological salt solution and this emulsion or suspension is placed in a sterile test tube for a few minutes to allow any particles of the medium and the larger clumps of bacteria to settle to the bottom. The upper portion of the suspension is then transferred to another test tube and standardized. At this time five-tenths percent phenol or three-tenths per cent tri-cresol is sometimes added to further insure its sterility after heating. The suspension is then transferred to a large single ampule or in varying quantities in separate one cc. ampules. The graduated quantities in the separate ampules are brought up to 1 cc. capacity by the addition of sterile salt solution and the ampule sealed in a flame. The vaccine is then heated in a water-bath for one hour at 58 to 60 degrees C. It is always

safer to inoculate an agar culture tube with some of the vaccine after it has been taken from the water bath and incubate it 12 to 24 hours to be sure that all the bacteria have been killed. The vaccines are then ready for use, and are best given by a hypodermic injection at the insertion of the deltoid, at intervals of 4 to 6 days depending upon the degree of local and systemic reaction.

The standardization of the vaccine or the number of bacteria per cc. has been worked out by various methods. One, that of Wright, in which a drop of the vaccine is mixed with a drop of blood of known R. B. C. count, and from the proportion of bacteria to the corpuscles found in a certain field of the microscope the number of bacteria per cm. is estimated. Another method is to compare the opacity of the bacterial suspension with a certain standard of opacity of some insoluble mineral salt. This standardization is not carried out often in actual practice as the worker soon learns to judge with his eye the proper opacity to use for the beginning of the course of treatment and after that the local and systemic symptoms are a far better indication of what the next dose should be than any cut and dried method of increasing by so many million bacteria at each dose.

"Sensitized bacterins" are also made by the treatment of dead bacteria with their specific serum, the same as with live bacteria, and these are known as "sero-bacterins". The special advantage claimed for sero-bacterins is, that they do not give nearly so severe local or systemic reactions, that they can be given in larger and more frequent doses, and that they often will obtain results in the later stages of an infection when simple bacterins or antitoxic sera, will not be of any benefit.

Certain infections seem to yield more favorably to vaccine therapy than others. Those in which favorable results are more often obtained are: furunculosis, carbuncles, chronic otitis media (where there is no bone necrosis), acne, chronic bronchitis, bronchiectasis, chronic gonorrhea, chronic abscesses in general (when not due to syphilis or tuberculosis), chronic cystitis, erysipelas, bacterial pyorrhea, arthritis (due to local foci of infection), typhoid (prophylactic), and endocarditis (when due to streptococci).

3. Immunization by injection of toxins is the third group of active immunity. Toxins are the secretions of living bacteria. Von Behring found that if an animal is injected with a sub-lethal dose of diphtheria toxin, that is, a dose that it is able to resist and then after a certain time it is injected with a lethal dose, the animal will remain alive. The animal has manufactured some substance within its body that makes it immune to the dose of toxin that would have been more than enough to have killed it before. It has developed an anti-toxin. The serum of this immune animal when injected into another animal is able to protect it from an attack of the specific organism or a lethal dose of the toxin, thus giving the second animal a passive immunity.

4. The best known example of immunization with a bacterial extract is that of tuberculin which, although it probably has had more use as a diagnostic aid, still holds a very important and valuable place as a therapeutic agent. Various tuberculin preparations have been manufactured, none of which seem to contain all the toxins necessary for the establishment of complete immunity. The preparation most used probably is the Koch's "Old Tuberculin," made by growing the tubercle bacilli in 5 per cent glycerine bouillon 5 to 6 weeks, filtering out the bacteria, and evaporating the filtrate to 1-10 its original volume. This gives a brown syrupy liquid which keeps very well. The vaccine treatment consists of various schemes for giving different dilutions at stated intervals. If the treatment is not carefully carried out and the scheme being used thoroughly understood, it is dangerous and can become an actual menace to the patient's life and should not be attempted.

Bail evolved the theory that during an infection the bacteria secreted a substance that counteracted the protective power of the infected animal. These substances he called "aggressins". He believed that they were formed by living

bacteria and only in the living body of the infected animal. Wassermann and Citron later found that these same aggressins could be obtained outside of the body by simply extracting the culture of bacteria with distilled water or serum, thus producing an "artificial aggressin" instead of the "natural aggressin" of Bail. Bail's first success was to take the swine pest bacillus and inject a small amount of living culture into the pleural cavity of a rabbit, in which animal this organism is a "pure parasite" and very toxic. At autopsy the bloody pleuritic fluid was collected, freed of blood and bacteria by centrifuging and sterilized by five-tenths per cent phenol and heating to 44 degrees C for three hours. He then took guinea pigs, to which animal this bacillus is a "half parasita," and inoculated a series with some of this pleuritic fluid and at the same time with a living culture of the swine bacillus.

Pig No. 1 with 1-100 loop of bacteria, sub-cutaneously; this size dose it was found did not kill the pig, so was sub-lethal.

Pig No. 2 was inoculated with one and five-tenths cc. of the rabbit's pleuritic fluid, which contained the aggressin, and in addition was given 1-100 loop of the same bacillus culture. The pig died on the third day.

Pig No. 3 received one and five-tenths cc. of the pleuritic fluid alone and remained alive.

Pig No. 4 received the same sized inoculation of swine bacillus and twice the dose of aggression and died the second day.

Pig No. 5 received one-tenth the dose of bacteria and 2 cc. of the aggressin fluid and was made very ill for a few days, but finally recovered.

Bail and his pupils believed that it is not merely the presence of the bacteria that shows the existence of the disease, but as long as they are void of their aggressin properties they are the same as saprophytes and are harmless. They believe that bacteriacidal immunity is not a true immunity, as the vaccine which produces it does not contain any aggressin. They hold that the immunity is then only apparent and not against the disease itself, as all true immunity must be produced by the introduction of aggressin and the reaction bodies or anti-aggressins must be formed.

The following is the method of producing active immunity by either natural or artificial aggressins. Rabbits are chosen and a slow or rapid method may be used. This consists of giving the rabbit one to four cc. of aggressin sub-cutaneously or intra-peritoneally; the smaller doses are repeated at intervals of 5 to 10 days. Four to fifteen days after the last aggressin is injected, 1-100 to 1-10 loop of swine bacillus is injected. This is followed in about fifteen days by an injection of a full loop of the bacillus culture. Even a third injection may be given. These animals are found to withstand the inoculation, while control rabbits injected with 1-10,000 of a loop of the bacillus culture failed to survive. The important point to remember is that a long period must elapse between the last aggressin injection and the first inoculation with the bacillus, because that period of the procedure is one of hyper-susceptibility as was shown by the first series of experiments.

From a bio-chemical standpoint these anti-aggressins belong to the group of amboceptors used in the complement-fixation tests. The advantages gained from immunization by aggressins are the absence of possible dangerous effects, only slight local reaction, a high degree and long duration of immunity, the possibility of immunization against pure parasites, and the ease with which the material is preserved. The disadvantages are that the manufacture is somewhat complex, the increased susceptibility during the interval of inoculation and the onset of immunity. However, it is not too much to suppose that this method of immunity may in the future supplant to a large extent the ones now in use, which are extracts of dead bacteria, of which tuberculin is the best known example, or the injection of the dead bacteria themselves, the bacterins.

EARLY DIAGNOSIS OF INCIPIENT PULMONARY TUBERCULOSIS IN THE ADULT.*

By WALTON FOREST DUTTON, M. D., Tulsa, Oklahoma.

The diagnosis of incipient pulmonary tuberculosis is not an easy matter. This is true for several reasons: First, the patient is not aware of any pulmonary trouble, and does not, as a rule, consult a physician unless it is for some other ailment. Then, unless the physician is very thorough in his examination, the tubercular condition is overlooked. Second, the condition is often overshadowed by some other disease such as asthma, laryngitis, bronchitis, typhoid, pulmonary syphilis, pneumonia, actinomycosis, etc. Third, a complete history is imperative. Fourth, unless the physician be thoroughly conversant with and equipped for chest work, there will be a wrong diagnosis in a large majority of cases.

On examination, the patient is required to divest himself of all clothing with the exception of a breech cloth. If hair covers the chest and back it should be removed by shaving. This accomplished, the patient is placed in the recumbent position and instructed to breathe normally. Then he is told to breath rapidly, slowly, deeply, to count or cough, as the occasion may require. After the examination in the recumbent position, the patient should be changed to the sitting posture. In this position, many sounds are elicited that cannot be heard in other positions.

Inspection reveals little, if anything, in incipient cases of tuberculosis except those factors which have a predisposing character. The contour of the chest has very little, if any, diagnostic value. The expansile powers of the chest should receive some consideration, for restricted lung power undoubtedly predisposes to a diseased condition of the lungs. The classical phthisical chest is only noted in advanced cases or in patients emaciated from other disease.

Palpation has no value in the incipient period of tuberculosis. Percussion, in early diagnosis, is entirely negative. When apical unilateral hyperresonance is distinguished, an advanced stage is in evidence.

Auscultation is one of the best means of detecting the early lesion of pulmonary tuberculosis. For this purpose, I prefer the ear—nature's own stethoscope—for it is entirely reliable and obviates the possibility of adventitious sounds. Dieulafoy asserts that during the first period on palpation, dullness at one apex is found. Rough breathing, with prolonged, jerky expiration, is heard in the supra-spinous fossa, or in the clavicular region, together with subcrepitant rales or sibilant ronchi. The last signs are often absent, and only dry crepitations are heard after coughing.

Rough breathing and the so-called cog-wheel inspiration must be carefully noted. A squeaking, rasping, or abnormal sound in the lungs denotes a lesion. Rales may be entirely absent in the incipient stage. If present, after the patient is made to cough, there may be sibilant, crackling, or bubbling rales or the so-called mucous click, according to the advancement of the disease.

A well known authority asserts that the early manifestations of incipient pulmonary tuberculosis are: "(1) Physical signs: Deficient chest expansion, the phthisical chest, slight dullness or impaired resonance over one apex, fine moist rales at the end of inspiration, expiration prolonged or high pitched, breathing interrupted. (2) Symptoms: General weakness, lassitude, dyspnea on exertion, pallor, anorexia, loss of weight, slight fever, night sweats, and hemoptysis."

My only comment on the above is that such conditions exist only in an advanced first stage or beginning second stage of pulmonary tuberculosis.

During the first period, patients rarely, if ever, consider themselves ill. They may have a slight cough and little, if any, fever. They consider their indisposition due to dyspepsia, ennui, or bronchitis and make no effort to change their manner of living until warned by a hemorrhage or severe exacerbation of the condition.

*Read before the Tulsa Academy of Medicine, March 31, 1916.

I am not in accord with Dieulafoy and many authors as to the region attacked in incipient pulmonary tuberculosis. In a recent series of fifty cases, I have had only one case in which the apex was affected.

I call the reader's attention to the fact that incipient pulmonary tuberculosis may present gastric symptoms similar to typical organic or inorganic stomach lesions, although gastric hyperacidity or normal acidity is generally observed.

Tubercle bacilli are never present in the sputum until the second period of the first stage, or later, but the presence of bacilli is positive evidence. Bloody expectoration, when not traced to the nose, throat, organic heart disease, actinomycosis, or to malignancy, should be assumed tuberculosis. The nasal and buccal membranes are apt to be flabby and pale, though the color index is normal. In any chronic disease associated with loss of weight, tuberculosis may be suspected.

The Moro reaction may be positive, due to latent tuberculosis through the presence of some old encapsulated tubercle. *A mild Moro denotes tuberculosis with low resistance; a strong Moro denotes tuberculosis with a high resistance.* The Diazo reaction occurs late, if at all. The Von Pirquet is not reliable in patients over twelve (12) years of age. Calmette's reaction is irritating and dangerous. Koch's tuberculin has much value as a diagnostic agent. The intradermic test is to be preferred.

Some authors maintain that there is accentuation of the second pulmonic sound in nearly all cases of incipient tuberculosis. I cannot agree with this statement. When this condition is present, there is a beginning second stage.

It has been said that in eighty per cent of the cases of incipient tuberculosis, the pulse will often disappear when the arm, corresponding to the site of the lesion in the lung, is raised above the head, or turned to the back of the body. This phenomenon is only found in the secondary stage of pulmonary tuberculosis and then it is not a reliable sign. About ninety-five of one hundred cases of early infection have normal rate of respiration and slightly, if any, increased pulse rate.

Abrams has shown that rales heard with difficulty over the apices may be heard more distinctly by using the stethoscope over the acromian processes. In the lower lobes, increased whispered sound is of great diagnostic value. It is said, by some writers, to be infallible.

In an examination of the lungs for incipient pulmonary tuberculosis the inspiratory and expiratory phase, together with the respiratory cycle, should be carefully noted. Adventitious sounds are often obscured by the cough. *Localized apical rales are almost pathognomonic.* The latent rale in the diagnosis of incipient pulmonary tuberculosis is of paramount importance. *The probable seat of the latent rale is in the atelectatic area of the tuberculous focus.*

Every adult who wastes much or rapidly with or without fever, with a steamboat exhaust pipe, or choo-choo rale, clicking, squeaking, or dry subcrepitant rale, must be suspected of having tuberculosis, in the absence of diabetes or Basedows diseases. Every woman, who has neither genuine chlorosis, syphilitic anemia, nor Bright's disease, but has a chloro-anemic appearance, must be suspected of tuberculosis. Every individual who has haemoptysis, excluding bronchitis, diseases of the nose and throat, organic heart disease, actinomycosis, or malignancy must be suspected of tuberculosis.

This condition, verified by a positive tuberculin reaction, may be assumed and considered conclusive evidence of pulmonary tuberculosis.

There is no disease in the realm of medicine where an early diagnosis is of more importance than that of pulmonary tuberculosis, unless it is carcinoma. It seems difficult for investigators to deviate from the old established rote and rule of diagnosis.

This is plainly evident in the diagnosis of incipient tuberculosis. The attitude of most text-book writers, and ninety-nine per cent of all physicians toward

the diagnosis of incipient pulmonary tuberculosis, would be comedy if it were not for the tragedy it causes. This disease, which attacks all races in every clime, takes a toll of 175,000 persons in the United States every year. What is the matter? The laity ask the question. Medical authorities assert that pulmonary tuberculosis is a chronic condition, rarely acute. Why this continued prostitution of the profession by archaic authority? In what way has the medical profession improved upon the physical methods and teachings of Hippocrates and his contemporaries, respecting the diagnosis of incipient pulmonary tuberculosis? Is pulmonary phthisis spontaneously a chronic disease? Not any more so than cancer. *In tuberculosis, as well as in carcinoma, etc., intoxication or systemic involvement are not incipient, but the manifestation of the second period in the progress of the disease.* Why should tuberculosis differ from other infectious diseases? It has a beginning as well as an ending. *It differs only as other infectious diseases differ, in that the different types, or stages, are governed by the virulency of the various strains of bacilli and the resisting power of the patient.*

A pretubercular, or premonitory condition, may develop into an active tuberculosis in a few weeks, or months, according to the strain of bacilli and resisting power of the patient. A tubercular infection of low virulence in a patient of low resisting power, will give, as a rule, a slow developing infection. A high virulent infection, in a patient of low resisting power, gives a rapid developing infection.

A lesion of the lung, great or small, excluding asthma, bronchitis, laryngitis, pneumonia, pulmonary syphilis, typhoid, actinomycosis, and all non-tubercular diseases, can be assumed tubercular. Given a case with normal pulse, normal temperature, normal weight and no cough, and a negative history, in which is found a lesion, a pretubercular, if not a tubercular, condition is to be suspected. *A jerky, rasping sound heard on inspiration, accompanied by a low whistling sound on expiration, denotes an early lesion. This is the time for medical interfenerce. At a time when the resisting forces are driven back and the barriers broken, the toxin enters the entire organism. Then the condition is no more incipient, but advanced into the first stage, and a rapid pulse, slight afternoon temperature, slight cough, slight loss of weight and other concomitant symptoms develop.*

Nothing is more praise-worthy than the physician who has studied nature from his youth, knows the elements of the human body, the diseases which attack it, the therapeutic value of drugs which will benefit it, exercises his profession scientifically and unselfishly, administering to the poor as well as the rich. Unless the physician is thoroughly conversant with and equipped for chest work, there will be a wrong diagnosis in the majority of cases. *To be thoroughly equipped, means to be both mentally and physically qualified. Any defect of hearing unfits a physician for chest work. The more acute this sense, the better prepared the physician, all other things being equal.*

In conclusion, therefore, I shall plead attention to and for the following:

1. Physicians who are thoroughly conversant with, and equipped for, chest work.

2. A most complete system in the taking of case histories.

3. Preparation of the patient.

4. Special attention to the sounds heard in incipient cases—the cog-wheel respiration; rough, clicking, squeaking, or rasping sounds; choo-choo or dry subcrepitant rales.

5. Division of each stage of pulmonary tuberculosis into three periods each as, first, second, and third period of the first stage, etc.

6. Latent and larved pulmonary tuberculosis is not incipient pulmonary tuberculosis.

7. Tuberculous intoxications, which cause the so-called anemias, neurasthenia, hysteria, and the various neuroses as, headache, vertigo, and insomnia, are due to second or third period progress in the first stage of incipient pulmonary tuberculosis or to later stages.

8. Rapid pulse, slight afternoon temperature, loss of weight, and slight cough are due to tuberculous intoxications of the first stage of pulmonary tuberculosis.

9. Respiratory disturbances, gastralgia, disturbed appetite, nausea, hemorrhage, night sweats, tubercle bacilli, are to be found in the third period of the first stage, or first period of the second stage or later.

10. The Moro reaction, Von Pirquet, and the intradermic test are valueless in the diagnosis of incipient, or first period pulmonary tuberculosis, but of invaluable aid in later periods.

11. A compulsory examination of the population quarterly.

12. All examinations to be conducted by competent physicians, who will be placed in full time service.

SOME PROCTOLOGIC DON'TS

By J. M. COOPER, M. D., Oklahoma City

Don't neglect to inject a fistula with methylene blue in peroxid of hydrogen that you may better trace the fistulous tract.

Don't forget that many of the failures in treating an external blind fistula result from not locating the opening into the rectum. Most fistulae that seem to be of the external blind type have connection with the rectum.

Don't make the mistake of cutting the sphincters obliquely, but always cut at right angles to the muscle.

In multiple fistulae, don't open the fistulous tract communicting with the rectum until the external tracts have almost healed. Why? First, because of less infection from the bowel. Second, because the tissues of the rectal wall heal more rapidly than the peri-rectal tissue. Third, because there is much less deformity of the anus.

Don't be afraid to incise the external sphincter where fissure in ano exists, and pack the wound with gauze strips daily until it heals.

Don't overlook the fact that 10 per cent balsam peru in castor oil, on gauze, is the best dressing for fistulous tracts and fissures.

Don't say that a case of pruritus ani can not be cured unless you have administered an autogenous vaccine made of the streptococcus fecalis.

Don't be deceived for many cases of rheumatism have been cured by hemorrhoidectomy.

Don't neglect to dilate the anus and rectum every two or three days, beginning about the fifth day after hemorrhoidectomy and continuing to dilate for two to three weeks. Why? To prevent abnormal constriction of rectum and anus.

Don't make the mistake of applying the cautery clamps obliquely, but place it at right angles to the lumen of the rectum. Why? That the resulting scar tissue will not constrict the rectum.

Don't be a party to the packing of the rectum with gauze after a hemorrhoidectomy, unless to control hemorrhage, which is bad practice. Your patient will always remember the hour of removal of that gauze. You need only to introduce a five-inch piece of stiff rubber tubing, one fourth inch in diameter, in rectum to allow for the passage of the gas.

Don't use too much force in massaging the prostate gland, as many cases of proctitis result from the improper massaging of this gland.

OKLAHOMA'S SCHOOL OF MEDICINE.

By Le ROY LONG, M. D., Oklahoma City

It occurs to us that the physicians of the state may be interested in the work and the prospects of the School of Medicine, and we are anxious to have them know what we are doing and what we hope to do.

In the work of the school the very first thing upon which emphasis is placed is efficient and systematic service on the part of the teaching staff. We take the position that to proceed upon any other basis would be not only a mistake, but a great wrong to all concerned—a great wrong to the students who come here for instruction—a greater wrong to the citizenship of our state by sending out men lacking in those capable qualities which should be characteristic of a really valuable physician. It is well understood by all, therefore, that men are on the faculty for but one purpose—to render acceptable service. As we see it, this is a basic essential, for an enthusiastic and able corps of teachers may make up to a great extent for lack of equipment and other facilities.

We are glad to say that this scheme is now being carried out in a really ideal way. In addition to the full-time men at Norman, we have here at Oklahoma City fifty odd active members of the faculty, and there is a perfectly satisfactory esprit de corps. Practically all are doing systematic work, and all are working together for the one purpose of making the very best showing for the school. There are no bickerings, no jealousies apparent. Since our connection with the school we have been gratified by this unselfish spirit of co-operation.

We are endeavoring to impress upon the students that medicine is not a money-making vocation, but a profession that should be dedicated to service to humanity. We are trying to encourage them to have ideals, and to show them that if the medical man will conscientiously work for the realization of an ideal based upon the traditional conception of altruistic service to his fellow being the mere matter of making a living will take care of itself. We realize that this is a heavy undertaking, for all of us know, although we may blush with shame when we think about it, that the spirit of commercialism has, especially of late years, been too often manifest in the ranks of our profession. As long as we have even a few physicians who unblushingly take advantage of the necessities of confiding patients and drive sharp bargains the task of training physicians in embryo is often disheartening. But some of us have enough faith to make us feel like continuing the job, for, God willing, we believe the time is not far distant when our work will bear abundant fruit, and those who have wandered away from the paths of professional rectitude and traded upon the misfortunes of the sick will be forgotten, or, worse, and perhaps more justly, remembered with undisguised disgust.

An essential that we are endeavoring to put into practice is to accept only students qualified in an educational way for the study of medicine. In this day of stress we do not believe it is right to take into our classes men who have not had proper preliminary training; nor do we believe it is right to advance men from one year to another when they have been conditioned. Therefore, there is a weeding out process in the first two years. The medical course is a long and trying ordeal—more so than ever before. We believe that it is manifestly unfair to encourage a poor student and let him drift along to final failure in his last year. It is to avoid this waste of time—this injustice to the poor student—the danger, too, of being tempted to let a weakling "go through" on account of sympathy in the last pinch that the weeding out process is begun early.

Recently an arrangement was made through which a considerable sum of money is made immediately available in connection with the present needs of the School of Medicine. Temporarily, this will place us in a spendid situation. Through this arrangement we will be able to install all the equipment now needed both at Norman and at Oklahoma City.

At present we are operating two hospitals at Oklahoma City—University Hospital and University Emergency Hospital—with an aggregate capacity of 100 beds. In addition, we have clinical arrangements with St. Anthony's Hospital and with several maternity hospitals. This gives the School of Medicine excellent clinical facilities, and this is borne out by a reference to our clinical work during the last term.

The school is now supplied with all the required full-time professors, and, in addition thereto, we have a full-time pathologist and an expert anesthetist on salary in connection with the work of our two hospitals.

After careful consideration, we believe we are justified in making the statement that our work in the School of Medicine, both at Norman and at Oklahoma City, is A grade, but we are in B grade, and we believe we are kept there mainly for the reason that the work of our clinical years is conducted in rented property. We do not believe that the Council on Medical Education looks with favor upon this temporary, unsettled situation of the school—an unfortunate, crippling situation for a department of the University of the great State of Oklahoma.

This brings us to the most important matter in connection with our most urgent need if we are to grow in the future. If Oklahoma University is to have a medical department of the kind she should have—a medical department of real merit and, withal, a source of greatest good to the people of the state, we must have a large clinical hospital at Oklahoma City. Our ideal is a 300 bed hospital with an arrangement through which the counties of the state shall send the indigent sick and crippled and afflicted to us for treatment. In that way we will have a large clinic, and at the same time we believe that we will be able to render a real service to the people. It has been repeatedly demonstrated that at such an institution many afflicted persons who are burdens upon communities in which they live may eventually be relieved and sent back home to take their places as useful, efficient members of society. The readers of the Journal may be of great assistance. We believe that they should take an interest in this important matter—we sincerely believe the most important from the standpoint of added service and of good to the people before the profession of the state today. If each of you will wake up to the opportunity, we will build here the greatest institution of its kind in the Southwest—an institution which will in the years to come be a monument to the unselfish enterprise of our citizenship and the righteous cooperation of our profession.

Before closing we wish to call the attention of the physicians of the state to our facilities for taking care of the sick poor at the nominal rate of $10.00 per week, straight. There is no extra charge for operating room, anesthetic or laboratory work. We receive patients of all classes except those who have active tuberculosis or a contagious disease, and each patient is placed in the care of the department to which he belongs.

A feature of considerable importance in connection with these clinical cases is the opportunity to consult the several departments in any case. Everything possible is done to correctly diagnose and treat these patients.

Those coming for this service should bear a letter from a physician or from some responsible person to the effect that he is unable to pay for the services of a physician or surgeon. When such patients arrive at Oklahoma City they should go at once to University Hospital, 325 East 4th St. If an ambulance is needed we will have one at station if notified beforehand.

Finally, we hope that the physicians of the state will make it a point to visit the School of Medicine when it is convenient for them to do so. When you come to Oklahoma City, please let us know you are in town. Our doors are always open to you, and we shall be glad to see you. We are anxious to know you; we are anxious for you to know what we are trying to accomplish here, for out of such an association will necessarily come mutual benefits.

JOURNAL OF THE OKLAHOMA STATE MEDICAL ASSOCIATION

VOLUME IX SEPTEMBER, 1916 NUMBER 9

PUBLISHED MONTHLY AT MUSKOGEE, OKLA., UNDER DIRECTION OF THE COUNCIL

DR. CLAUDE A. THOMPSON, EDITOR-IN-CHIEF

ENTERED AT THE POSTOFFICE AT MUSKOGEE, OKLAHOMA AS SECOND CLASS MAIL MATTER, JULY 29, 1912

THIS IS THE OFFICIAL JOURNAL OF THE OKLAHOMA STATE MEDICAL ASSOCIATION. ALL COMMUNICATIONS SHOULD BE ADDRESSED TO THE JOURNAL OF THE OKLAHOMA STATE MEDICAL ASSOCIATION, BARNES BUILDING, MUSKOGEE, OKLAHOMA.

The editorial department is not responsible for the opinions expressed in the original articles of contributors.

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Failure to receive the Journal should call for immediate notification of the editor, 507 Barnes Building, Muskogee, Okla.

Local news of possible interest to the medical profession, notes on removals, changes in address, deaths and weddings will be gratefully received.

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EDITORIAL

HEALTH PROBLEMS PRODUCED BY SCHOOL CONDITIONS

In the month of September hundreds of Oklahoma schools, city and rural, will open for the reception of students. Physicians are peculiarly concerned with the rapid rise of morbidity from the commoner infectious diseases just after this time. It seems no amount of publicity and warning of the consequences of admitting infected children to the presence of those uninfected has any weight toward lessening the diseases more commonly prevalent, and we have come to take it largely as a matter of course that these things must be, simply because sporadic efforts to prevent them have failed. The responsibility for these conditions rests with two classes of the people; parents, more or less ignorant or indifferent, and physicians in exactly the same category. The ignorance and indifference of the parent can be met in a small way only when the total to be accomplished is considered; the family physician and the public speaker, through the medium of the school club and patrons' clubs does free and unappreciated work of considerable magnitude along these lines.

The work of many physicians and their intelligent co-operators among the great lay body is often nullified and made inert by the attitude of ignorant and careless physicians who attempt to curry favor with a family or the public by giving oplnions counter to the health officer, going so far in some cases as to carry their disputes of diagnosis into courts about as well fitted to pass on the merits of the matter as so many mules. "Be sure you are right and then go ahead" or "Safety First" are slogans apparently never occurring to this class of public servants, who invariably insist on calling a mild scarlet fever measles, mild smallpox chickenpox, etc.

We should not now overlook the fact that one case of measles sent to school too soon will mean an epidemic of that disease, followed by bronchial pneumonia with all its grave consequences.

Children with developed defects in nose, ears and tonsils, teeth and eyes should be treated properly, not only in order to benefit the invidual who is thus below standard with his fellows, but to remove from the general midst a source

of constant danger. It should not be forgotten that a child subject to "colds" usually has some underlying defect which may often be remedied by simple treatment; that when this is done the cause of an epidemic of "colds" may be removed from the schoolroom.

There is no occasion for hysteria and excitement in this work, each physician should advise his charges in a cool, sensible way of the dangers of these small and usually neglected things and as a rule his advice will be followed with the net result of benefit to all the public.

DR. JOHN B. MURPHY

August 11th, at Mackinac Island, death claimed Dr. John B. Murphy, who died after acute suffering from aortitis. He was 59 years of age, too young to give up a life so well devoted to the relief of suffering and the advancement of ideas looking toward alleviation of human misery.

The surgical world, especially those who had the advantage of knowing him and having witnessed his work, concede without question his pre-eminence as a leader and teacher. His ability was so great that his lectures, observations and writings were closely followed by those seeking to do better work and a trip to Chicago was not considered complete by any surgeon without having seen and heard Murphy if opportunity presented.

In a long life full of great events in surgical advances he evolved many things of great value to the profession. His first generally known accomplishment was the popularizing of what was called the Murphy button for rapid anastomosis in intestinal and similar work, but the important phases of his life's accomplishments will be found in his pioneering in brain and nerve surgery, and bone and joint work. His findings in these fields stand practically without controversion.

In the death of Murphy the medical profession has lost the greatest teacher it has ever produced while the world has lost one of its great humanitarians.

SAUCE FOR THE GOOSE

"The Board of County Commissioners hereby give notice that propositions from legally qualified judges, clerks, sheriffs, et cetera, will be received up to———. Proposition must set out the sum for which said persons will conduct the business of judge, clerk, sheriff, etc., in the manner provided by law".

The above is exactly how the business of the county would be conducted, if the people should conclude to apply the same rule for selection of officers as many county officers apply for the selection of physicians to care for prisoners, indigents and other county charges. The system we complain of would be perfectly proper if county officers were in the habit of advertising for bids for surgical, medical, drugs and such care of their own families; but they are not, they simply take the position that when they ask for bids, the cheapest man will get the work and the taxpayers will thereby be saved money. The nonsensical idea that medical service to indigents should be placed on the same basis as is the erection of buildings and supply of food to them undoubtedly often results in the selection of incompetent physicians.

ABSTRACTS AND REVIEWS

CONDUCTED BY
DRS. L. F. WATSON AND L. J. MOORMAN, OKLAHOMA CITY.
AND FRED J. WILKIEMEYER, MUSKOGEE

A NEW TREATMENT FOR CHANCROIDS

G. R. Livermore, Memphis, Southern Medical Journal, August, 1916, in speaking of the treatment of chancroids, observes that the many remedies in use is conclusive evidence of the inadequacy of any one of them. In order to effect a cure, it is necessary to eradicate all infection. The actual cautery, nitric acid, etc., will often do this successfully, but if they fail a large amount of necrotic tissue remains that is both a protection and a fertile field for bacterial growth. A drug that will destroy the infection and not injure the tissues is silvol, a protein compound containing 20 per cent silver.

The method consists in cleansing the chancroid thoroughly with warm sterile water and then covering the entire ulcerated area with silvol crystals. A guaze dressing and bandage are then applied and not removed until the following day. If upon removing the dressing, the chancroid has not lost its virulent appearance, a second application is resorted to. When silvol is applied to a chancroid there is a marked stinging sensation, but it is usually not severe and does not last long. The writer states that while silvol is not a specific, it is by far the best remedy he has ever used in the treatment of chancroids.

THE IMPORTANT ROLE OF THE LYMPHATICS IN ASCENDING RENAL INFECTIONS.

D. E. Eisendrath and J. V. Kahn, Chicago, J. A. M. A., February 19, 1916, observe that the lymphatic capillaries of the periurethral sheath play a most important part in ascending renal infection. The older view, that infection from the lower to the upper urinary tract travels with the lumen of the ureter, that is, against the secretory current, must be abandoned except when the ureter is completely obstructed by a calculus, stricture or external pressure.

In studing experimental infection in animals, the authors have more recently reported the results of over 600 animal autopsies. In tracing the infection upward, every portion of the ureter was cut longitudinally as well as serially. Summarizing, they state that the inflammatory infiltrations follow in a most accurate manner the course of the lymphatics. In the early stages of infection, the infiltration is found in the submucous layer of the bladder, and is especially dense around the smaller vessels. In the lower portion of the ureter, it is most marked also in the submucous coat. A little farther up the periurethral sheath, composed of blood vessels and loose areolar tissue, play the chief role in carrying the infection upward. In the ureter the other coats become invaded from without inward. In the kidney, the infiltration is first seen around the renal vessels which pass into the parenchyma, next in the cortex glomeruli, then the medulla and finally in the more advanced states the infection breaks into the tubules.

This study is of particular interest because it is the first that has ever been undertaken to show how infection extends from the bladder to the kidney.

CONSERVATIVE SURGICAL CORRECTION OF DISPLACEMENTS OF THE COLON

Dr. C. A. L. Reed, Cincinnati, New York Medical Journal, July 15, 1916, discussed constipation due to various forms of mechanical conditions in the intestines. Measures for their relief, he said, were radical and conservative. The radical operations were short circuiting and excision, or a combination of both. They were indicated when no other procedure would reestablish physiological drainage of the intestines. Conservative operation consisted in fixation of the displaced colon to relieve retardative angulation and mechanical interference with circulation. The operation devised by the speaker was called parietal implantation of the colon.

Briefly the method consisted in making a long incision, exploring the abdominal and pelvic viscera for adhesions which are broken up. Dissect the peritoneum away from the transversalis fascia for a distance of three-quarters of an inch along the whole length of the incision. Put the patient in the Trendelenburg position, bringing the transverse colon and omentum out through the incision. Fasten the omentum to the denuded transversalis fascia by stitching the base of the former by its external surface, to the lower margin of the denuded surface of the latter, employing a continuous interruption suture and exercising care to avoid wounding or constricting important omental vessels. Stitch the margin of the upper peritoneal flap to the under surface of the transversalis fascia. Approximate the divided ends of the mucles. Fortify the last line of sutures with a few silkworm gut sutures passed through the superficial fascia, muscle and transversalis fascia. Close the skin with the continuous suture with fine catgut.

The speaker reported 226 consecutive cases of parietal implantation without a death, and sixty-two cases in which the operation was combined with other procedures with six deaths.

The results, so far as functional restoration with consequent good health was concerned, were

reported to be highly satisfactory. Demonstrations by X-rays were presented, showing the implantation intact after more than five years.

ACUTE PERFORATION OF ULCERS OF THE STOMACH AND DUODENUM

M. T. Field, Salem, Mass., Boston Medical and Surgical Journal, June 8, 1916, reported in the New York Medical Journal, considers the symptoms of acute perforation of gastric and duodenal ulcers. He says it occurs most often in adult males who give a history of stomach trouble. Its possibility is not excluded by complete absence of the symptoms of dyspepsia. The most important diagnostic sign is a sudden, severe epigastric pain, followed immediately by signs of spreading peritonitis, which manifests itself through general tenderness and muscular rigidity. Early or first hour tenderness and rigidity are important signs in differentiating acute perforation from appendicitis and other intraabdoninal lessions. The first points of maximum tenderness and rigidity, especially in duodenal perforation, are on the right side above and below. Later the rigidity becomes board like over the whole abdomen. Tympany over the liver may occur, but usually is not present. The abdominal pain as a rule is very severe and patients have an anxious expression, but at first the pulse is only slightly accelerated.

SODIUM CITRATE METHOD OF INDIRECT TRANSFUSION OF BLOOD.

W. S. Carter, Galveston, Southern Medical Journal, May, 1916, says the greatest danger in the transfusion of blood is that of hemolysis. That it can be avoided by a preliminary examination of the blood has been well established. The method of Rous and Turner is unquestionably the most desirable. It requires only a drop of blood and the examination can be made within a half-hour.

The method of indirect transfusion which has recently been developed seems to be by far the the best as it is so simple that it can be used by any general practitioner. Since the introduction of this method, transfusion need no longer be regarded as a surgical procedure.

It is important that the needle used to withdraw the blood from the donor's vein should be large enough for the blood to flow freely in a continuous stream as soon as the canula is introduced. Aside from the difficulty of getting enough blood, the blood clots in the needle or canula when it flows slowly. Carter's experiments have shown that a strength of 0.2 per cent sodium citrate has been sufficient to prevent congulation. Ordinarily the amount transfused in man does not exceed 750 cc. It is convenient to use a 2 per cent solution of the sodium citrate, as it simplifies the calculation by mixing it with blood in the ratio of 1 in 10.

Watson.

RESUME ON INFECTIOUS DISEASES.

Grancher's idea, "Asepsis in the handling of contagious diseases," seems to be gaining headway-especially in hospital-cared-patients. Grancher's method permits the handling of contagious dis eases in the same ward with general nursing. Richardson's Resume of English Hospitals places the percentage of cross infections at 3 per cent. University of Michigan percentage in the first year of operation—2 per cent. In the United States, the University of Michigan, at Evanston and Chicago, have introduced the above method, and Iowa City has one under construction. In the new children's clinic of Vienna the percent of cross infections rose to over 10 per cent. Given the most conscientious aseptic technique of both doctors and nurses, Grancher's method for handling contagious diseases works nicely. The general practitioner cannot use this method except in isolated cases.

It is with some relief one sees disinfection after contagious diseases being discontinued. This method has been in force the past four years in New York. Chapin's statistics for New York show no increase as a result of the discontinuance of disinfection for contagious diseases including bedding disdisinfection. Providence, Rhode Island, and Chicago are no longer disinfecting. The reviewer can well recall the disgusting use of formaldehyde in jail disinfection and often wondered how the prisoners withstood it. And also seeing the silly use of atomizers sprayed over the soles and shoes of the attending physician. Isolation for a reasonable time, Grancher's method and fresh air and sunshine will do all.

MEASLES.

Epidemiology and Prophylaxis:—Rohmer's analysis of hospital epidemic shows the average case of measles is infectious for at least seven days, that is during the period of invasion and exanthem, but not during desquamation. Raffie's studies show conclusively that closure of schools will effectually control measles epidemic.

Diagnosis:—Grumann believes he has found a further aid for the early diagnosis of measles. He finds on both tonsils linear and punctate white swelling of three mm. length in the neighborhood of thelacunar deppessions. They may be present before Koplik spots or with the latter and precede the eruption by one or two days.

WHOOPING COUGH.

It's a pity this disease is not reportable and isolation insisted upon. Rucker states 10,000 children are sacrificed every year.

Pathology:—Mallory and Horner found cilia of the epithelial cells lining the trachea, bronchi covered with a thick layer of minute bacilli, and believe their situation is characteristic of the disease and explanatory of the cough.

Vaccine Treatment:—Considering the disease, its variability, one can say little for or against the use of vaccine. However, their use does not produce any harmful effects.

DIPHTHERIA.

Statistics and Epidemiology:—Great headway can be made by systematic culturing and isolation. In culturing it is absolutely necessary to touch all parts of the upper respiratory tract; the pharynx may be negative but present in the nose; present on one tonsil and other portions negative, etc. (Walthall). Contact infection, direct or indirect, is the chief method of propogation.

Carriers:—No success made so far in the ridding of carriers of their Kleb's-Loefflers. Overriding by means of staphylococcic sprays are of no use and dangerous.

Pathology:—Porter and Pratt, in a very excellent communication, conclusively prove that the circulatory collapse is not, as we commonly believed, due to the toxin acting on the vasomotor centre.

Bacteriaology:—More success in the treatment with antitoxin will be made, when the general practitioner ceases drawing fine lines of distinction and gives antitoxin without waiting for the culture to prove positive. The laboratory man well knows his limitations, particularly so, since so many men are so hap-hazard in takings swabs. The late Doctors Rotch and John McCollum, taught their students to give antitoxin if there was the slighest suspicion; believing antitoxin had curative powers outside of diphtheria. Fear of anaphylaxis may be disregarded. Dr. John McCollum, who was the pioneer in America in the use of antitoxin and big doses of same, in his thousands of cases, never saw any serious effects.

Cultural Methods:—Conradi and Troch's new culture medium consists of beef serum plus a small percentage of sodium tellurate and calcium alate. They first grow the bacilli on Loeffler's serum three hours and then transfer to the new mixture. The diphtheria bacilli colonies reduced the tellurate a black colony resulting.

Immunology:—The Schick reaction is bound to play a great role. All observers agree it is of great value in determining the amount of diphtheria antitoxin necessary to neutralize the circulating toxin; also of greatest value as a prophylaxis. In the past whole members of the family were given antitoxin; now by means of the Schick test one can accurately measure the amount of antitoxin circulating in the individual. If he has no antitoxin of course antitoxin is introduced.—Abstracted from American Journal Diseases of Children, August, 1916; Alfred H. Beifield & Walthall, same issue.

Wilkiemyer.

PERSONAL AND GENERAL NEWS

Dr. A. E. Martin, Marietta, is visiting in Canada.

Dr. E. Nunnery, Granite, has moved to Roosevelt.

Dr. C. W. Jamison, Alva, has moved to Stillwater.

Dr. G. W. Stewart, Hobart, is taking a vacation in Arizona.

Dr. R. A. Workman, Woodward, is automobiling in Colorado.

Dr. T. C. White, Canute, was reported seriously ill in August.

Dr. H. B. Ames, Burlington, is doing special work in Chicago.

Dr. Jackson Broshears, Lawton, spent his vacation in Colorado.

Dr. J. W. Pollard, Bartlesville, is in Albuquerque, New Mexico.

Dr. B. B. Dawson and family motored to Hot Springs in August.

Dr. S. P. Strother, Altus, visited the Chicago clinics in August.

Dr. T. H. Flesher, Edmund, visited the Mayo Clinics in August.

Dr. E. Forrest Hayden, Tulsa, visited the Mayo clinics in August.

Dr. A. W. Roth, took a vacation in August in Estes Park, Colorado.

Dr. and Mrs. L. A. Hahn, Guthrie, visited Colorado Springs in August.

Dr. J. J. Fraley, Hominy, left for Colorado for a hunting trip in August.

Dr. A. E. Martin, Marietta, is reported seriously ill in July and August.

Dr. G. L. Harker, Elk City, returned from the Chicago clinics in August.

Dr. J. I. Derr, Waurika, visited Chicago and New York Clinics in August.

Dr. A. W. White, Oklahoma City, visited Luddington, Michigan, in August.

Dr. and Mrs. F. Y. Cronk, Guthrie, spent part of August in Atlantic City.

Dr. and Mrs. J. S. Little, Eufaula, returned from New York City in August.

Dr. C. T. White, Clinton, after a serious illness is recuperating in New Mexico.

Dr. A. D. Johannes, Oklahoma, City did special work in Ann Arbor in August.

Dr. W. W. Rucks, Guthrie, and family are summering at Palmer Lake, Colorado.

Dr. and Mrs. W. W. Brodie, Tulsa, visited the Pacific coast and Canada in August.

Dr. Walter H. Howard, Chelsea, suffered the loss of an automobile by theft recently.

Dr. W. E. Lamerton, Enid, visited Corpus Christi and southern Texas points in July.

Dr. A. M. Marshall and family, Chandler, visited their old Missouri home in August.

Dr. H. K. Speed, Sayre, visited Washington, New York and Chicago clinics in August.

Dr. C. O. Von Wedel, Oklahoma City, spent August visiting New York and Boston clinics.

Dr. R. S. Wagner and family, Tulsa, visited New Jersey and other eastern states in August.

Dr. J. B. Osborn, Jr., and family, Frederick, Oklahoma, visited Colorado Springs in August.

Dr. W. H. Livermore, Chickasha, and family visited Illinois and Lake Michigan resorts in July.

Dr. Thos. T. Matlock, Carmen, has returned from Chicago where he has been doing special work.

Dr. J. J. Caviness, Hedrick, has moved to Altus and formed a partnership with Dr. David Garret.

Dr. and Mrs. Chas. W. Heitzman, Muskogee, spent August and September in California and Canada.

Dr. J. L. Adams, Pryor, recently suffered considerable damage to his fixtures when his office caught fire.

Dr. G. A. Boyle, Enid, visited the Mayo Clinics in August, incidentally taking a fishing trip while away.

Dr. J. W. Shelton, Pauls Valley, has moved to Ardmore, where he will do eye, ear, nose and throat work.

Dr. M. M. McCord, formerly of Carrier, visited Indiana in August. He will locate in Helena in in September.

Dr. H. L. Dalby, Wilburton, made an automobile trip to Colorado and other western states in July and August.

Dr. Floyd Warterfield, Muskogee, attended the Rochester clinics in August. Mrs. Warterfield accompanied him.

Drs. J. R. Bryce, Snyder, **and Edwin Hollis,** of Hollis, have formed a partnership; they will practice in Snyder.

Dr. J. D. Warford, Erick, **and Miss Pearl Memhard,** of Clovis, New Mexico, were married in Amarillo, Texas, August 1?.

Dr. S. N. Mayberry, Enid, returned in August from a trip to Minnesota, where his family has a cottage for the summer.

Dr. H. M. Weinberg, Stroud, is under bond from Lincoln County Court, charged with practicing medicine without a license.

Drs. W. A. Fuqua, Frederick, **and Harper Wright,** Grandfield, have formed a partnership and will practice in the former place.

Dr. C. H. Lockwood, Medford, accompanied by his family, spent July and August in Chicago, Dr. Lockwood doing special work.

Dr. P. A. Mangan, Tulsa, Food and Milk Inspector, has returned from eastern centers, where he has been making a study of food and milk problems.

Dr. E. Y. Bass, Talala, narrowly escaped a serious injury in an attempt to climb between two freight cars. His foot was caught and painfully mashed.

Dr. S. A. Looper, Garber, has been assigned as resident physician in the New Orleans Eye, Ear, Nose and Throat Hospital. He will spend one year in that city.

Dr. William Patton Fite, who recently graduated from the University of Virginia, has located in Muskogee, forming a partnership with his father, Dr. F. B. Fite.

Miss Mae Brown, Tulsa, has filed a writ of mandamus in Tulsa county requiring the Tulsa Hospital Association to show cause why a diploma should not be issued her by that institution.

Dr. L. L. Patterson, Arapaho, a member of the Custer County Medical Society, died in Clinton Hospital July 22 from typhoid fever. Dr. Patterson was 34 years of age at the time of his death.

Dr. John I. Gaston, Madill, **and Mrs. Eula Boyd Mullins,** Oklahoma City, were married in the latter place August 14. After a trip to eastern points they will return to Madill for their future home

Dr. J. M. Workman, Woodward, officially advises his friends that he holds the record on black bass in Woodward county. He states the one he caught weighed nine pounds and that he is now ready to compete with all comers.

Dr. R. T. Castleberry, Ada, narrowly escaped death when a farmer with whom, it is said, he had had trouble fired a shotgun at him at close range. Castleberry retaliated by shooting the man through the arm and lower abdomen.

Dr. S. D. Hawley, Superintendent of Health, Tulsa, recently issued an order ending the custom of tenting in the city limits. Hereafter no one will be permitted to live in tents. The order is a result of the usual bad sanitary conditions surrounding such places.

Drs. Garrett, Caviness, Rutland and Abernethy, Altus, announce the opening of a hospital in the near future. The surgical work will be in charge of Dr. Garrett; laboratory, Dr. Caviness, and eye, ear, nose, and throat work will be handled by Drs. Rutland and Abernethy.

Dr. James L. Shuler, Durant, has been "downed," but it required the combined efforts of a Ford and a pair of mules to accomplish the result. The Ford scared the team and the team retaliated by hurriedly backing a buggy into the doctor. The injuries are not serious.

Dr. E. E. Flagg, of Mooreland, was instantly killed August 18, when an automobile which he was driving plunged from a 15 foot embankment. Dr. Flagg and his wife were just starting on a vacation and after leaving Mooreland a short distance, the car plunged into a ditch washed by recent rains. Mrs. Flagg was severely injured.

Sapulpa is enjoying a novel situation. Two health officers are exercising the functions of the same office, or attempting to do so. Dr. A. A. Avery holds the seal and commission and contends that a Dr. Boggs cannot take possession by summary appointment; the matter came to a focus when the new appointee issued some sewer connecting notices, which were held to be void.

Ohio cities, in their search for increased revenues, are assessing special taxes against physicians' lawyers, dentists, bankers, artists, etc., on the theory that they belong to "non-productive professions.' It is said the proposed tax runs from $5.00 a year on some professions up to $300.00 for bankers. $5.00 and $10.00 a year is the suggested amount for physicians. Ohio physicians might consider publishing a notice that they will, after the adoption of any such foolishness, raise their visiting rates by about $1.00 a call.

Osteopaths in the Kansas City convention, it is said, decided that advertising was permissible provided they live up to the claims set forth. We can already see the end of such foolish determination. In the first place, there is no one to determine if the claims are lived up to—the rival of the claimer cannot be the judge, so we may expect to see "Dr. Jerkem" and "Dr. Adjusticatorum" carrying their superb ability to jerk cancer of the breast or uterus or adjust luetic and Neisserian infections from their patients, via the printers ink route. We will not be surprised to see one reading "Wonderful Bargain! Beginning at 9 o'clock sharp Tuesday. First Come, First Served. Eclampsia, Elephantiasis, Morphine and Drug Addictions, Osteomyelitis and Appendicitis adjusted most skilfully. 10 per cent off for cash. Examination Free. Dr. Boner Spinepopper."

COUNTY SOCIETIES

McIntosh County Medical Society met in Checotah, August 8th, with the following program: The Importance of Promptness of Diagnosis in a Few Surgical Conditions, Dr. A. F. Watson, McAlester. Typhoid Fever—General Discussion—Opened by Dr. J. D. Watkins. Infantile Paralysis—General Discussion. Clinic—Case reports. Dr. Watkins served a supper to the visiting physicians.

The Oklahoma Central Medical Association met in El Reno July 18. The following program was rendered. 9:00 a. m.—Symposium on Oral Hygiene and Mouth Infections. Oral Hygiene and Its Relation to Ill Health—Dr. L. G. Mitchell, Oklahoma City. Alveolar Infections in Relation to Systemic Disease—Illustrated by lantern slides, Dr. J. R. Caughran, Oklahoma City. Vocal Infections and Nephritis—Illustrated by lanter slides, Dr. W. R. Livermore, Chickasha. The Diagnosis and Treatment of Proctitis—Dr. W. J. Wallace, Oklahoma City. The Newer Methods of Treating Hemorrhoids—Dr. J. M. Cooper, Oklahoma City. 11:00 a. m. to 2:00 p. m.—Clinics. 2:00 p. m.—The Intestinal Localization of Epilepsy—Illustrated by lantern slides, Dr. W. L. Kendall, Enid. The Surgical Relief of Epilepsy—with case report, Dr. C. Von Wedel, Oklahoma City. The Diagnosis of Infantile Paralysis—Dr. C. J. Fishman, Oklahoma City. The Treatment of Infantile Paralysis—Dr. R. L. Hull, Oklahoma City.

CORRESPONDENCE AND MISCELLANEOUS

ON INFANTILE PARALYSIS.

The panic about infantile paralysis which is sweeping the country is quite true to the traits of the American people to run to wild extremes of excitement under impulse of the first thought about a matter suddenly brought to their minds. The disease is not to be discounted of course and many of the precautions which are being advocated and enforced against its spread are well taken. But when it is brought to mind that the simple old-fashioned disease of measles cost more lives per week during many weeks in New York city in the past year than the new terror cost last week, it becomes plain that the alarm which people are falling for about the paralysis peril is at least a bit inconsistent.—*Oklmulgee Democrat.*

THE TURK AS ENEMY.

The student of race characteristics would have difficulty in finding a knottier problem than the Turk. Our war office has just commented on his chivalrous and humane treatment of the garrison of Kut.

Turkish officers have taken advantage of a truce now and then to apologize for the scandalous irregularities committed by their Arab allies; they have shown a quite remarkable consideration in such matters as the return of lost kits; they have given to our wounded in their hands every comfort available, and to our officer prisoners every honor to which their rank entitles them.

Men returned from Gallipoli tell the same tale. They will remember the Turk as an enemy who would not fire on the Red Cross, and who showed a regard for the decencies of war from which his allies in Europe might well learn.

Yet this people that has so well preserved the tradition of knightly fighting is responsible for the most dreadful massacres that modern times have known. The troops who would scorn to purloin a wounded British soldier s kit will apparently drown a shipload of Armenian women and children without a qualm. The Turk, it seems, is a Jekyll to his equals and a Hyde to those he considers his inferiors.—Manchester Guardian.—*Oklahoman.*

BATTLE CREEK SANITARIUM GOLDEN JUBILEE

Names sometimes designate without adequately describing. Such is the case with the Battle Creek Sanitarium which will celebrate the fiftieth anniversary of its founding on October 3, 4 and 5. This institution is a sanitarium, with all the most modern and scientific equipment for diagnosing and curing disease. But it is much more. From its inception, it has been in the forefront of the movement for natural, rational and physiologic methods in the treatment of the sick. Primarily, indeed, its function has been educational—the teaching of right principles of living as not only aiding in curing sickness but preventing its return as well. The Sanitarium therefore has taken an active and a leading part in movements for public sanitation, for diet reform, to curb the liquor evil, to check tuberculosis, to abolish child labor and more especially to study tendencies toward race degeneracy and to point out eugenic and other remedies for them.

Being purely a charity and having no dividends to pay to stockholders, it has been able in the half century of its existence to spend over $1,400,000 for the care of the indigent sick.

The program for the celebration includes a huge banquet, receptions, a big outdoor spectacle, a street pageant, with historical and allegorical floats, a race betterment exhibit, conferences on child labor, eugenics, tuberculosis and other socialogical and medical problems of the day, with numerous speakers of prominence, and a Health Chautauqua.

All Physicians are invited to come.

THE PHYSICIAN THE TRUE CHRISTIAN SCIENTIST.*

"During the past six months, 216 surgeons have been wounded, 119 killed and 130 missing in the German army, while 260 surgeons have been wounded, ninety killed and 460 missing in the French army; the proportion in the other armies doubtless equals these numbers, a sad record, indeed, and glorious testimony to the heroic and patriotic devotion of men who amid shot and shell have calmly done their duty without the excitement of combat to render them oblivious to danger. The Iron Cross has been conferred on over 2,700 medical officers for acts of heroism in attending the wounded under fire."

*John B. Murphy in *Medical Pickwick,*

IMPORTANT FACTS CONCERNING INDUSTRIAL ACCIDENT COMPENSATION IN OHIO

During the first 18 months the compulsory provision of the Ohio workmen's compensation was in effect:

Nearly $750,000 was paid out for medical and hospital attention by the Industrial Commission and by employers carrying their own insurance under the state plan.

Claims of 100,003 injured employes or families of deceased employes were allowed.

The total amount of money awarded from state insurance fund was $4,401,986.16.

$46.07 was the average award for medical and hospital expenses not including the hospital and medical expense of employers under the safe insurance plan.

$200, the maximum amount, was awarded for hospital and medical expenses in 16 of the 616 fatal cases in which awards were made.

Infection was reported as having occurred in 9,024 of the 100,003 accidents—*nearly* 10 *per cent.*

Thirty-seven cases in which infection was reported resulted fatally, 23 of them occurring in connection with trivial injuries.

Three hundred and eighty-five claims were allowed for total or partial loss of vision in one or both eyes. Of this number, 69 were the result of infection.

The hour of most frequent occurrence of accident in the forenoon was from 10 to 10:59 and in the afternoon, from 3 to 3:59.

More accidents occurred on Monday than on any other day in the week.

Falling and shifting objects, with a total of 36,193 victims, were the cause of more accidents than any other factor enumerated in cause class.

Awards were made for accidents in every county in Ohio. Cuyahoga, with 24,750 claims and $903,682.48 in awards, heads the lists of counties.

The total number of claims disallowed by the commission was 7,986.—*Ohio State Medical Journal.*

ANNOYING LABORATORY EXPERIENCES.

The directors of the laboratories of the State Board of Health are often surprised over things sent to them for examination, and more frequently at the carelessness shown by intelligent physicians and people in the preparation, packing and shipment of specimens, otherwise entirely proper and legitimate. For instance, within the last few days a large handsome, unmuzzled Collieg do came by express to the Bacteriological Laboratory, without the name of the sender or a word of information as to the charges against him, or instructions as to what should be done with him. Thirty-six hours later a letter was received from a prominent public official, the owner, stating that the dog had bitten one or more persons, was suspected of being rabid, and asking that he be placed under observation until it could be determined if his victims needed the Pasteur treatment. The dog came from a distant part of the State, the trip requiring changes of trains and roads, with no warning on the crate that there was anything suspicious as to either his health or character, in the course of which a number of people necessarily handled him and incurred the danger of possible exposure to rabies. Suspected dogs, horses and cows have been sent in before, but all of these were muzzled and in the care of custodians, who could care for the poor animals and prevent danger to others. As all the workers in this Laboratory are women, and have no menagerie for the care of animals, no cemetery for the disposal of their remains or funds for the maintenance of such activities if they had them, the dilemma of these young scientists, accustomed to face and avoid recognized laboratory dangers constantly with calm courage, over the the reception of this live, anonymous but suspected dog, may be easily imagined. Often the express man turns up, carrying at the end of a long pole an old bucket, basket or other receptacle, containing the decayed remainder of what was a dog head two or three days ago shipped without the caution of packing in ice, with brain, Negri bodies, if really from a rabid animal, bones and flesh, only a malodorous, nauseating maggot-ridden mass, which might just as well have been left on the animal so far as any good could come from its examination.

But these are only a few samples of their troubles, caused by the carelessness or thoughtlessness of physicians who know better, and yet constantly send in specimens in such a way as to destroy any chance of getting satisfactory results from the laboratroies by the way they procure, prepareor ship Almost every day specimens of diluted feces arrive in tuberculosis containers, dirtys putum in containers intended for hookworm, or diphtheria specimens in either of the ones mentioned, or in an imperfectly cleaned morphine or quinine bottle; and, probably, worst of all, a day seldom passes without a package coming in with no name or address on it. Dr. Curry has similar experiences in the Water Laboratory. From one town, to which he had sent carefully packed and sterilized containers, with full printed instructions, as is done for all who ask them, he received specimens day after day in poorly cleaned cocoa-cola bottles. One cannot but feel sorry for the patient or community dependent upon such doctors in their days of stress; good fellows, no doubt, and meaning well, but the none less a constant source of danger to those who must rely upon them; and it is from this careless or ignorant element in the profession that most of the criticism about laboratories and all similar public activities comes—*Kentucky Medical Journal.*

ON ALCOHOL.

I was with the relief column that moved on to Ladysmith. It was an extremely trying time apart from the heat and the weather. In that column of 30,000 men, the first who dropped out were not the tall men, nor the short men, but the drinkers, and they dropped out as clearly as if they had been labeled with a big letter on their backs. Having spent the greater part of my life in operating, I can assure you that the person of all others that I dread to see enter the operating theatre is the drinker.—Frederick Treves.

As a citizen I further note that alcohol is one of the most dreadful and insidious of all corrupting agents known to men in debauching legislatures, and robbing our citizens of the results of their labors at the ballot box, making a government of the people, by the people, for the people a farcical phrase while king alcohol sits enthroned in the legislative hall.—Howard A. Kelly.

Alcoholic intoxication increases the susceptibility of animals to many infections, and influences unfavorably the process of immunization. Pregnant rabbits repeatedly intoxicated by alcohol are likely to abort, and to die soon afterwards from some accidental infection. Many of their young die a few days after birth.—William H. Welch.

Out of every 100 patients I have charge of at the London Hospital, 70 per cent. directly owe their ill health to alcohol.—Andrew Clark.—*Medical Review of Reviews.*

HEALTH INSURANCE FOR WAGE EARNERS

A death rate for American wage earners twice that of professional men; the prevalence of high sickness rates; the need among workers of better medical care and of a systematic method of meeting the wage loss incident to sickness; and the necessity for more active work in the prevention of disease are the corner stones of the case for compulsory health insurance presented in the brief just published in New York by the American Association for Labor Legislation. This situation, it is pointed out, cannot be met fully by existing agencies, and can only be properly remedied by a system of health insurance embracing all wage earners and dividing the cost among employee, employer and the state.

The great amount of sickness in the homes of the poor causes an average loss by each wage-earner of 9 days a year, and involves annually a national wage loss of approximately $500,000,000. Notwithstanding the greater prevalency of tuberculosis among wage-earners, their early susceptibility to the degenerative diseases of middle life, and the excessive death rate among the industrial population, workers often are unable to secure the medical attention they require. In Rochester, New York, it was found that 39 per cent of the sickness cases were not under a doctor's supervision; in a city like Boston, Massachusetts, one-fourth of the population, it is estimated, are unable to pay the fees of a private physician.

The lowered vitality and the poverty created by present day conditions it is claimed can only be checked by a system of health insurance, which for a small sum divided among employer, worker and state, will bring medical care to the wage-earner and his family, will assure for a maximum of 26 weeks in a year a weekly payment of 2-3 of wages during the breadwinner's illness and in addition a small funeral benefit should be die. "Compulsory health insurance," concluies the brief, "is an economical means for providing adequately for the sick wage-earner, and will prove a mighty force for the inauguration of a comprehensive campaign for health conservation.

MERCURIALIZED SERUM IN SYPHILIS

Mercurialized Serum represents an important advance in the administration of mercury for the treatment of cerebral and systemic syphilis. In cerebral syphilis the spirochetes are located in the cerebrospinal system and are unaffected by the intravenous or other use of the usual antisyphilitics. Dr. C. M. Byrnes, of John Hopkins University, has discovered that bichloride of mercury loses its corrosive properties and may be administered intraspinally if dissolved in the proper amount of horse serum, thus bringing this powerful antisyphilitic remedy in direct contact with the spirochetes in the intraspinal and intracerebral regions. Intravenous injections of mecurialized serum are also employed for the treatment of systemic syphilis.

INTRASPINAL TREATMENT

For intraspinal injection, the H. K. Mulford Company furnishes mercurialized serum in tube of 30 cc., containing 0.0013 Gm. (1-50 gr.) Mercuric Chloride, known as Mercurialized Serum No 1 in tubes of 30 c. c., containing 0.0026 Gm. (1-25 gr.) Mercuric Chloride known as Mercurialized Serum No. 2: in ten 30 c. c. ampuls, each containing 0.0013 Gm. (1-50 gr.) Mercuric Chloride, known as Mercurialized Serum No. 3 (Hospital size), and in ten 30 c. c. ampuls, each containing 0.0026 Gm. (1-25 gr.) Mercuric Chloride, known as Mercurialized Serum No. 4 (Hospital size).

INTRAVENOUS TREATMENT

Loyd Thompson, Ph. B., M. D., of Hot Springs, Arkansas, in a preliminary report, published in the Journal of the American Medical Association (May 1, 1915, page 471) reports administering mercurialized serum intravenously, without the occurence of phlebitis and periphlebitis. While not recommending mercurialized serum in all cases of syphilis, he finds it of great advantage where quick results are imperative and to overcome the great pain and irritation following intramuscular injections of mercury.

The preliminary report comprises eight cases, in which sixty-six injections were made altogether, and in no case was there the slightest amount of phlebitis. Dr. Thompson states that it is not necessary to use autogenous serum. He prepared a solution of mercuric chloride of such strength that each cubic centimeter contained 22 milligrams (1-3 grain) of the salt. This solution was divided for dosage as convenient. The initial dose in all cases was 1-75 c. c. or 5.5 mg. (1-12 grain) of mercuric chloride. This was gradually increased to 7 c. c. or 22 milligrams (1-3 grain). Quite severe ptyalism occurred in one case after a total amount of 131 milligrams (1 5-6 grains) had been administered; and three of the other cases showed slight symptoms of ptyalism after a total amount of 2 2-3 grains had been administered. The injections were then discontinued. While bichloride of mercury, combined with normal serum, is non-corrosive, it should be remembered that it is just as poisonous as an aqueous solution of mercuric chloride and therefore, its dosage should be reckoned the same as that of mercuric chloride.

To supply the demand for mercurialized serum to be used intravenously, the H. K. Mulford Company is furnishing mercurialized serum in sealed ampuls, using for that purpose normal serum from the horse. These syringes are of two strengths, namely, 1-12 grain and 1-6 grain.

REPORT STATE BOARD MEDICAL EXAMINERS

EXAMINATION.
July 11-12, 1916.

Samuel Jackson Bradfield,	Bartlesville, Okla.	Licensed
Logan I Evans,	Drumright, Okla.	Licensed
Henry J. Weedn,	Sasakwa, Okla.	Licensed
Wann Langston,	Oklahoma City Okla.	Licensed
Lee Roy Wilhite,	Oklahoma City, Okla.	Licensed
Howard Leonard Ree,	Oklahoma City, Okla.	Licensed
Arthur Winfield Nunnery,	Granite, Okla.	Licensed
William M. Leslie,	Arnett, Okla.	Licensed
Leo Alonzo Berrey,	Seward, Okla.	Licensed
Roy Abner Webb,	Oklahoma City, Okla.	Licensed
George Molton Holcombe,	Stonewall, Okla.	Licensed
Joseph Edwin Hollis,	Hollis, Okla.	Licensed
Frank Gleen Francisco,	Enid. Okla.	Licensed
Gerard F. Van de Sand,	Chicago, Ill.	Licensed
Ben Eben Cutler,	Grove City, Pa.	Licensed
Park Hinds Medearis,	Westville, Okla.	Licensed
Barton Hiram Watkins,	Gotebo, Okla.	Licensed
Arthur Maynard Bacon,	Ardmore, Okla.	Licensed
Henry Jefferson Watson,	Pauls Valley, Okla.	Licensed
Roy Lewis Pendergraft,	Hollis, Okla.	Licensed
Frank L. Powers,	Tulsa, Okla.	Licensed
Jesse Benjamin Hollis,	Hollis, Okla.	Licensed
Chonner Polk Chumley,	Norman, Okla.	Licensed
William Patton Fite,	Muskogee, Okla.	Licensed
James Grady Harris,	Muskogee, Okla.	Licensed
Earl Claxton Lightfoot,	Carona, Kas.	Licensed
James Pendleton Webb,	Devol, Okla.	Licensed
O. B. White,	Oklahoma City, Okla.	Licensed
Jasper E. Wilkerson,	Connersville, Okla.	Licensed

LICENSED BY RECIPROCITY
July 11-12, 1916

LeRoy Worth Baxter,	Tulsa, Okla.	Kansas
Wm. Ernest Balsinger,	Oklahoma City, Okla.	Texas
Otis White Sedgwick,	Alva, Okla.	Vermont
Isaac Wesley Bolinger,	Henryetta, Okla.	Arkansas
James Fleming Musser,	Broken Bow, Okla.	Arkansas
John Patterson Bishop,	Carrier, Okla.	Nebraska
Samuel Ray Evans,	Stilwell, Okla.	Texas
Andy Singleton Melton,	Forgan, Okla.	Arkansas
Hamilton Neal Lusk,	Goldthwaite, Tex.	Texas
Rufus Hansen Sherrill,	Broken Bow, Okla.	Arkansas
Philip Leigh Lathrop,	Blackwell, okla.	Kansas
Erskine D. Johnson,	Sapulpa, Okla.	Tennessee
Leland Samuel Larimore,	Blackwell, Okla.	Kansas.
Francis Marion Crume,	Lark, Okla.	Texas
Wm. Oscar Pool,	Wynnewood, Okla.	Missouri

RE-REGISTRATION.

W. C. Barnard,	Seneca, Mo
C. C. Buttram,	Muskogee, Okla.
C. G. Mitchell,	Claremore, Okla.
W. H. Ford.	Kingston, Okla.
J. T. Mitchell,	Yale, Okla.

RALPH V. SMITH, Secretary.

NEW AND NONOFFICIAL REMEDIES.

Vitalait Starter.—A culture in vials of the Bacillus bulgaricus and the Streptococcus acida Bactici in symbiosis. It is intended for the home preparation of fermented milk. Sufficient to prepare from 1 to 3 quarts of fermented milk is sent on request of the physician to the patient twice a week. The Vitalait Laboratory, Inc., Newton Centre, Mass. (Journal A. M. A., July 15, 1916, p. 203.)

PROPAGANDA FOR REFORM.

Aromatic Spirits of Ammonia.—This is an old fashioned complex mixture. Its reputation has little scientific basis. Its effects probably are psychic, in the main. Such effects might be expected from the irritation of the nasal mucosa by the ammonia and to the flavor and odor of the lemon, lavender and nutmeg oils. The physical effect is probably due to the alcohol, through the ammonium carbonate and uncombined ammonia may have some restorative action by the irritation of the gastric mucosa or by their neutralization of nauseating acids in the stomach. When the effects of ammonium carbonate are desired, this is better given in aqueous solution. When the effects of alcohol are desired, whiskey is to be preferred (Journal A. M. A., July 1, 1916, P. 65).

The Pharmacopoeia Revision.—As usual the Pharmacopoeia about to be issed will be antiquated when it comes out. Some of the drugs in it will have become more or less obsolete, while many new ones which have proven of value will not be there. Since all the publications of the A. M. A. are isseud promptly and in excellent style, and are complete, correct and up to date, it is suggested that the U. S. P. should be taken over by the A. M. A., and be henceforth published by it. It may be extreme to say that the world would be almost as happy without a Pharmacopoeia, but at least we could get along very nicely with a Pharmacopoeia about one-half the size of the present one. A good deal of the matter it contains is quite superfluous and its deletion would prove distinctly advantgeous to (1) the book, (2) to the medical profession, (3) to the pharmaceutical profession and (4) last but not least, to the students of medicine and pharmacy (Critic and Guide, July 1916, p. 239).

Wine of Cardui Verdict.—Anent the verdict in the recent "Wine of Cardui trial" awarding one cent damages to the Chattanooga Medicine Company, a medical journal offers condolences to the American Medical Association, declares that the verdict is "a very decided victory for the 'patent medicine' association," and asks "is publicity the way to accomplish the true end"? The outcome of the case was a moral victory for the Association and publicity is the only ratioual means of attacking the nostrum evil, whether of the "patent medicine" or of the "ethical proprietary" variety. Until the public is given definite and specific facts no great strides will be made in preventing unscrupulous cupidity from preying on the sick and suffering. The faith of the public in patent medicines of all sorts continues because no small part of the medical profession is itself still under the blight of the "patent medicine" business—albeit the preparations in question are euphemistically spoken of as "ethical proprietaries" (Jour. A. M. A., July 15, 1916, p. 206).

Cocaine Substitutes.—Treasury Decision 2194 places "'alpha and beta eucaine or any of their salts or any synthetic substitue for them" under the provisions of the so-called Harrison Narcotic Law. To this ruling, the Farbwerke-Hoechst Company, the manufacturers of novocain, a synthetic substitute for cocain, took exception and, by agreement, a test case was argued before the United States District Court of New York. It is reported that the court took the case from the jury and ordered a verdict for the Farbwerke-Hoechst Company on technical grounds (Jour. A. M. A., July 15, 1916, p. 208).

Aromatic Spirits of Ammonia in Shock.—Horation C. Wood, Jr., explains that any stimulating effect which may be observed after the oral administration of aromatic spirits of ammonia is due either to a psychic effect or to its local irritant action on the gastric mucosa, just as the irritation by ammonium carbonate, in the form of smelling salts, of the mucous membrane of the nose may reflexly excite the medulla (Jour. A. M. A., July 15, 1916, P. 231).

Phenol Antidotes.—Various substances, fixed oils, glycerin, diluted sulphuric acid, the soluble sulphates of the alkalies and alkali earths, have been recommended as antidotes or prophylactics of phenol poisoning. M. I. Wilbert discusses the value, or lack of value, of the various reagents proposed as antidotes to phenol poisoning. He points out that glycerin will not prevent the production of gangrene or the absorption of phenol. Wilbert points out that the other substances mentioned have been found inefficient as detoxicants for phenol, and in many instances distinctly harmful. He further notes that, while the value of alcohol as an antidote for phenol poisoning has been scientifically disproved, yet even as late as 1915, the fallacy that ethyl alcohol is an antidote to phenol has been embodied in state laws designed to restrict the sale of phenol. Recent investigation, carried out in the Hygienic Laboratory, shows that in the presence of water neither alcohol nor glycerin has any detoxicating effect on phenol (Jour. A. M. A., July 15, 1916, p. 233).

Poisoning from Lead Paints.—The reports of the British departmental committee, appointed to investigate the dangers of the use of lead compounds in the painting of buildings, shows the principal source of poisoning to be dust, produced during the mixing of dry, white lead with oil and in the dry rubbing down process. While the first danger is done away with by the use of ready mixed paints, the committee proposes drastic legislation to remedy the second evil. The committee recommends the enactment of a law prohibiting the importation, sale or use of any paint material containing more than 5 per cent. of its drug weight of soluble lead compounds (Jour. A. M. A., July 15, 1916, p. 234)

Hexamethylenamin in Anterior Poliomyelitis.—It has been shown that hexamethylenamin has no germicidal activities, except in an acid medium. Therefore, it is of special value only in infection of the pelvis of the kidney, ureters, bladder and uretra when the urine is acid. It cannot be expected to exert germicidal activity in the spinal fluid, which is alkaline and hence is of no value in the treatment of anterior poliomyelitis (Jour. A. M. A., July 22, 1916, p. 309).

BOYHOOD REMINISCENCES

I was just a little boy,
Not much bigger than a toy,
But I could eat green apples all day long;
Then my stomach began to ache,
As my feet to fire they'd bake,
It was paregoric times in Texas then.

Roasted peanuts tasted fine,
But I ate green ones from the vine,
Until it seemed to me that I would surely bust;
Then the peanuts began to swell,
And my stomach gave me H——l,
It was paregoric time in Texas then.

Green melons from the neighbor's vine,
Oft times I could not tell from mine,
In fact I really thought they were the best:
Until Ipicac was placed in one,
Then I felt a kinder grum,
It was paregoric time in Texas then.

"He is sun stroke," the doctor said,
As he stroked my aching head,
"He has had malaria for quite awhile," my mother said:
But that neighbor began to smile,
As I lay limp on the straw pile,
It was paregoric time in Texas then.

I'v never liked that neighbor since,
I'll never again go near his fence,
No matter how good the melons look to me:
For without that stomach ache,
I can get along first rate,
It is paregoric time in Texas now.

When I was some bigger lad,
My trouble was still quite as bad,
For I could not quite give up the chase:
But Croten oil was what I got,
When next I visited that terrible spot,
It was paregoric time in Texas then.

I got married along in ninety-five,
To help keep the spirits alive,
It seemed to be the best for me to do:
But the strangest thing you see,
A babe had come to live with me,
It was paregoric time in Texas then.

—J. W. Echols.

NEW BOOKS

In this department publications sent THE JOURNAL will be acknowledged as they are received. Reviews of new publications will be made only as space and time permit. Publishers are requested to bear this in mind in forwarding books, etc., for review.

A TEXT-BOOK OF THE PRACTICE OF MEDICINE

A Text-Book of The Practice of Medicine. By James M. Anders, M. D., Ph. D., LL. D., Professor of Medicine and Clinical Medicine, Medico-Chirurgical College, Philadelphia. Twelfth Edition Thoroughly Revised. Octavo of 1336 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $5.50 net; Half Morocco, $7.00 net.

This edition of Anders, in keeping with the former excellence of its predecessors, has added new matter pertaining to Colon Bacillus Infections; Large-cell Splenomegaly; Tuberculosis of the Thyroid Gland; Vagotomy and Hypophyseal Obesity. Many subjects have been partly rewritten, among those of especial interest to the practitioner being Diabetes Mellitus; Hydrothorax; Gastro-enteroptosis; Acute Anterior Poliomyelitis; Neosalvarsan; Schick's Test and Chronic Pericholecystic Adhesions in Gall-stones. The book remains what it has always been, a safe guide to the student and practitioner and is as abreast with the times and rapid changes as any text-book of the same class.

OFFICERS OF OKLAHOMA STATE MEDICAL ASSOCIATION—ELECTION MAY 11, 1916.

Meeting Place—Lawton-Medicine Park, May ——, 1917.
President, 1916-17—Dr. Chas. R. Hume, Anadarko.
President-elect, 1917-18—Dr. W. Albert Cook, Tulsa.
1st Vice-President—Dr. Fowler Border, Mangum; 2nd Vice-President—Dr. A. R. Lewis, Ryan; 3rd Vice-President—Dr. Horace Reed, Oklahoma City.
Secretary-Treasurer-Editor—Dr. C. A. Thompson, Muskogee.
Delegates to American Medical Association—Dr. John Riley, Oklahoma City, 1917; Dr. M. A. Kelso, Enid, 1917-18.

COUNCILOR DISTRICTS.

1. Cimarron, Texas, Beaver, Harper, Ellis, Woods and Woodward; Councilor, Dr. J. M. Workman, Woodward. Term expires 1919.
2. Roger Mills, Beckham, Dewey, Custer, Washita and Woodward; Councilor, Dr. Ellis Lamb, Clinton.
3. Harmon, Greer, Jackson, Kiowa, Tillman, Comanche and Cotton; Councilor, Dr. G. P. Cherry, Mangum.
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5. Kingfisher, Canadian, Oklahoma and Logan; Councilor, Dr. Fred Y. Cronk, Guthrie.
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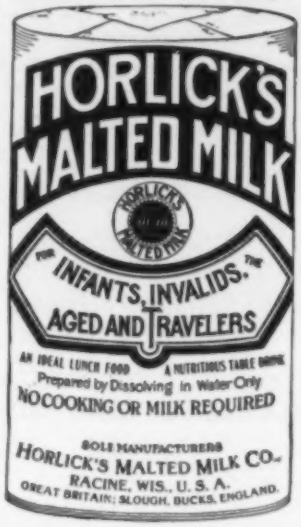
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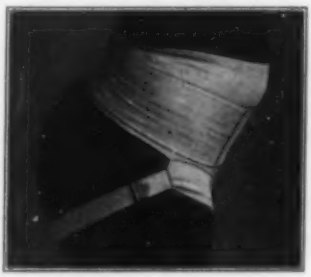

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